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April 9, 1956

Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Worst Jokes of the Week
Capsule Comment
Puzzle for You
Marble Skid Row
Oh, No!
Lagniappe
Out of Our Mailbag
Last Laughs

Worst Jokes of the Week

Two refrigeration servicemen decided to play gin rummy. Simultaneously they discovered that neither had any cash.

"We'll have to substitute something for money," said Joe. "How about playing for tools?"

"O.K.," agreed Moe, "but if we play for tools, will it take jacks or better to open?"

"How long have you been married?"

"Twenty odd years."

"Why do you call them odd?" probed the first gal.

"Wait till you meet my husband," answered the second.

Capsule Comment

When you invite trouble, you can be sure that it will accept.—JUDSON SAYRE.

"We'll have to rehearse that," said an undertaker as the coffin fell out of the hearse.

The other fellow's sins, like his undimmed auto lights, always appear more glaring than our own.—"TEX" COLBERT.

Puzzle for You

All of us handle paper money every day. But do we really know what it looks like—inside the corner numerals?

Here's a luncheon game you can play. Take bets on whose portrait, and what other illustration, is on each denomination of paper currency. (First, though, you'd better memorize the following answers.)

\$1. Washington; Great Seal of U. S.

\$2. Jefferson; Monticello (his home).

\$5. Lincoln; Lincoln Memorial.

\$10. Hamilton; U. S. Treasury building.

\$20. Jackson; White House.

\$50 Grant; U. S. Capitol.

\$100. Franklin; Independence Hall in Philadelphia.

\$500. McKinley.

\$1,000. Cleveland.

\$5,000. Madison.

\$10,000. Chase.

We don't know what illustrations are on the \$500 to \$10,000 bills—never having seen any. Discreet inquiry to local bank (Concluded on Page 24, Col. 1)

Frigidaire Extends Room, Year-Round Conditioner Line

DAYTON — A new 1½-hp. room air conditioner and a 1-hp. reverse cycle (heat pump) model highlight the 1956 line of window-type room air conditioners of the Frigidaire Div. of General Motors.

Also announced is a complete new line of forced air household furnaces featuring 18 gas models and seven oil-fired models in a wide range of capacities and types.

Other lines of Frigidaire residential air conditioners include "Multi-matic" cooling units in 2, 3, and 5-ton cooling capacity sizes that can be joined to almost any existing forced air heating system, and packaged year-round air conditioners that offer gas or oil heating with cooling capacities of 2 and 3 tons.

The newly styled window unit line, featuring faster pull-down, greater capacity, and high power factor, is offered in two series of models, the Deluxe and the Super.

The Deluxe series is made up (Concluded on Page 45, Col. 3)

Expansion Plans Set by Copeland

SIDNEY, Ohio—Copeland Refrigeration Corp. will shortly embark upon an expansion program designed to add nearly 500,000 sq. ft. of manufacturing and administrative space to the company's present facilities here, Frank J. Gleason, executive vice president and general manager, announced last week.

The new facilities will be constructed on a 75-acre site at the western limits of this city.

First unit scheduled for construction in the program is a 250,000-sq. ft. plant for refrigeration and air conditioning compressor manufacturing, engineering research, and product (Concluded on Page 2, Col. 1)

York-Shipley Offers Year-Round Systems

YORK, Pa.—Marketing of a new line of 12 year-round air conditioners under the York-Heat-Shipley "Homeaire" trademark was announced last week by S. H. Shipley, president of York-Shipley, Inc.

Flexibility of heating and cooling capacities is featured in these new air conditioners. The 12 models include three different capacities of furnaces, either oil or gas fired, with two different cooling capacities available for each furnace size.

"We feel that this is the most logical approach to the national market," Shipley stated, "because many areas need high (Concluded on Page 47, Col. 1)

ARI Issues New Standard for Cooling Towers

WASHINGTON, D. C. — A new standard for "Water-Cooling Towers for Use with Air Conditioning and Refrigeration Equipment" has just been released by the Air-Conditioning & Refrigeration Institute.

It is known as ARI Standard 910-55.

The purpose of the standard is to establish minimum requirements for the design and construction of prefabricated natural-draft and factory-assembled, mechanical-draft, water-cooling towers for use with air conditioning and refrigeration equipment.

This standard covers prefabricated natural-draft water-cooling towers and mechanical-draft water-cooling towers which are factory assembled into sections (Concluded on Page 2, Col. 5)

Judges' Demands Hit Gov't Cooling Program

WASHINGTON, D. C. — Air conditioning of Federal court rooms and offices may be delayed by a dispute between the General Services Administration and the judiciary over "basic" versus "piece-meal" cooling.

The disagreement was revealed when hearings before the House Appropriations Commit-

WASHINGTON, D. C.—The House of Representatives last month voted \$4.5 million for air conditioning of some of the older federal buildings in Washington, as part of the independent services bill of the General Services Administration.

If this bill gets final passage, it may constitute a "major breakthrough" in government spending for air conditioning of existing buildings, says the Air-Conditioning and Refrigeration Institute.

Earlier this year the GSA announced that all new non-military government buildings (roughly east and west of the Rockies and south of Boston) will be air conditioned. This would apply to such structures as small postoffice buildings, and could mean the expenditure of many millions of dollars over the next year.

tee were made public recently.

The judiciary wants Congress to include \$1,500,000 in the new budget to proceed with the air conditioning of court rooms in places where extreme heat reduces judicial efficiency.

Air conditioning of Federal buildings ordinarily would be (Concluded on Back Page, Col. 1)

Tecumseh Names Roll, Rundell Vice Presidents

TECUMSEH, Mich. — T. W. Rundell and R. C. "Cal" Roll have been named vice presidents of Tecumseh Products Co., it is announced by J. E. Layton, Tecumseh's president.

Rundell was also elected a (Concluded on Back Page, Col. 5)

130,000 Central Home Cooling Systems Sold During 1955

U.S. Eating Habits Zoom Market for Refrigerated Units

WASHINGTON, D. C.—Eating habits of the American people all point to increases in consumption of foods that require preservation by refrigeration or freezing, say recent U. S. government reports.

Per capita consumption of red meats in 1955 was 161 lbs., 36 lbs. greater than the average for the pre-war 1935-1939 era. Poultry, eggs, and milk all have registered big gains in postwar years, and the gains continued last year. At the same time consumption of potatoes and grains dropped.

Frozen food processors expect to turn out almost 20% more frozen food this year than last. It is pointed out that the rate of frozen food consumption is much more than that of the population gain.

San Francisco Code Passes Supervisors

SAN FRANCISCO — Including new articles on air conditioning, refrigeration, and permits and fees, San Francisco's revised building code has been published in full in "city printing" editions of the *San Francisco News*, official newspaper.

To accommodate the industry, orders for two or more copies will be mailed anywhere in the United States upon receipt of 10 cents for each copy desired. The code fills 12 full pages of the newspaper's "city printing" edition.

Orders should be addressed: "Circulation Department, *San Francisco News*, 812 Mission St., San Francisco 3."

After publication the new (Concluded on Page 4, Col. 1)

Final ARI Estimates Show Installations Up 68.5% Over '54 Total

WASHINGTON, D. C. — At least 130,000 homes in the United States were completely air conditioned with central residential comfort cooling systems in 1955, it is reported by the Air-Conditioning and Refrigeration Institute (ARI).

(Late in 1955, the News estimated that sales of central residential comfort cooling systems would reach the 125,000 figure, on the most conservative estimates.)

The 130,000 figure represents an increase of 68.5% over the 77,150 central residential systems which the ARI reported installed in 1954.

George S. Jones, Jr., managing director of ARI, said that the 130,000 figure for central cooling units is probably conservative, but that a more accurate figure would be difficult to get. The total given is based on manufacturers' shipments.

Jones predicted that sales of central residential units would break all records in 1956.

"The mass production of the central units has brought about a reduction in the cost of home cooling. This may mean that air conditioning will become standard throughout the country for new dwellings," he pointed out.

Hotpoint Subsidiary To Distribute In Grand Rapids

GRAND RAPIDS, Mich.—Effective April 2, Hotpoint appliances will be distributed in the Grand Rapids area by Hotpoint Appliance Sales Co., which will be operated as a branch of HASCO, Detroit.

B & W Distributing Co. is discontinuing its operations as a distributor as of the April 2 date.

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Servicing Auto Air Conditioners

44

Copeland Expansion Program - -

(Concluded from Page 1)

development.

The one-story structure will incorporate the latest construction and manufacturing equipment features. Closest possible quality control will be maintained with modern machinery, Gleason stated.

Modern material handling methods will be utilized throughout the plant. All feeder and main assembly lines will be mechanically synchronized. Provision will be made for air conditioning in essential manufacturing and administrative areas. Employee facilities, including spacious paved parking locations and cafeteria will be second to none, Gleason said.

The company plans to maintain some of its present Sidney facilities for some manufacturing, sub-assembly, and material storage operations.

"Transportation of finished goods from Sidney will be speeded considerably by the fact that the new location parallels the main line of the New York Central railroad," Copeland's executive vice president declared.

"A higher volume of carload shipments will be possible. The site also lies adjacent to Ohio's new north-south super highway which will be completed in 1958," he said.

Gleason said that "Copeland plans to invest \$5,000,000 in new facilities in Sidney in the near future."

He predicted that Copeland would experience a 150% increase over the 1955 volume within the next five years with a possible increase of 400% by 1965 if the industry continues to follow its established growth curve.

L. C. Smith, President Kenmore Products, Dies, Was Pioneer Engineer

LYONS, N. Y.—L. C. Smith, president of Kenmore Machine Products, Inc., died here recently.

Kenmore Machine Products manufactures driers, capillary assemblies, and other accessories for the refrigeration industry.

Smith had been an executive of the firm ever since its founding. Before that he had been a pioneer industry engineer, holding positions with Nizer Corp., Universal Cooler Corp., and Fedders Mfg. Co.

Smith's two surviving brothers are active in the industry. J. A. Smith is vice president of Kenmore; and Frank K. Smith is executive vice president of Tecumseh Products Co.

Senate Bill Would Discourage Discounting And Transshipping

WASHINGTON, D. C.—Sens. Wallace Bennett (R., Utah) and Frederick Payne (R., Me.) have introduced a bill designed to discourage transshipping and discounting of appliances, cars, and other mechanical or electrical devices.

Under the bill, manufacturers would be allowed to make contracts with retailers for payment of separate compensation for the dealers' maintenance of adequate service facilities and warranty fulfillments. The agreements would be subject to nullifications, modification, or suspension by the Federal Trade Commission.

The measure also would permit manufacturers to supervise and regulate their dealers' advertising.

Tower Standard - -

(Concluded from Page 1)

The new standard defines the following types of water-cooling towers: Natural-draft, mechanical-draft, induced-draft, forced-draft, spray-draft, spray-filled, deck-filled, spray-deck, and packed. It also explains circulating water, cooling range, approach, drift, blow-down, make-up, and total heat dissipation.

Components to be included as standard equipment are outlined as well as rating and performance and necessary published data.

Conformance with this recommended standard is completely voluntary, said spokesmen for the ARI, but equipment represented as being in accordance with the standard shall conform with all the provisions thereof.

Architects, consulting engineers, and others will find that this new standard provides a great deal of helpful information on water-cooling towers for use in connection with the purchase and specifications for this type of equipment, ARI said.

Copies of the new standard are free upon request.

What Are Contractor's True Costs? Miami Panel Explores Subject

MIAMI, Fla.—"What constitutes costs in the air conditioning and refrigeration contracting industry" was the subject of panel discussion at a recent meeting of the Air Conditioning and Refrigeration Association of Florida at a recent meeting here.

According to R. S. Lafferty, chairman, the panel came up with some of the following conclusions:

"A true analysis of costs in the air conditioning contracting field should include not only the cost of all material and labor, but also all other direct charges such as payroll insurance, engineering and supervision, labor, permits, service reserve, and possible state sales tax. Some include other direct charges such as sales commissions and auto and truck expenses.

"Many people prefer to operate on a true cost that includes the overhead of a given enterprise, and it is a definite known and proven fact that it is very difficult to increase the volume and have any serious lowering of overhead percentages.

"Even a smaller enterprise operated almost as a one man business must include a sufficient income for the proprietor or president of the company to be at least equal to the net amount of money which could be made by the same individual if working for a different organization.

"This individual proprietor if he actually closes contracts on his own jobs has performed the work of a specialty salesman and should be paid fairly as an item of overhead in this same manner, prior to any calculation of profit.

"In this locality, it has apparently been a custom among many contractors, to disregard true items of overhead or commission and unfortunately some of the contractors are operating at a loss because of this fact."

whether it's Summer

... Winter

The ALL-SEASON WINTERSTAT with the KRAMER UNICON

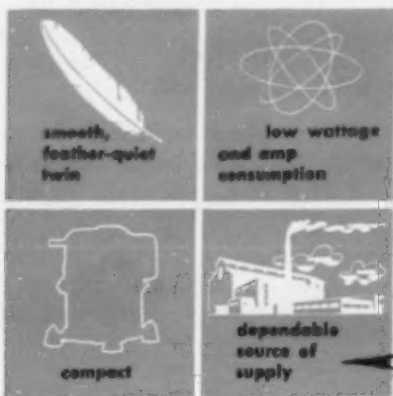
makes the operation of an air conditioning system fully automatic at any outside temperature

UNICON plus Kramer's patented Winterstat now gives you the ALL-SEASON UNICON — the only air-cooled condensing system providing predetermined minimum head pressure all the way to the expansion valve.

High Noon. . .

or cool of evening

KRAMER TRENTON CO. • Trenton 5, N.J.



**BOX SCORE for
TWIN-CYLINDER TITAN
of MOTOR-COMPRESSORS**

Copeland COPELAWELD

Day-in day-out dependability is the kind of performance you expect . . . and get . . . from an authentic big-league star. COPELAWELD proves its championship calibre in thousands of coolers, refrigerators and air conditioners . . . delivering high-capacity cooling with low power consumption. Everywhere, users report precision-built COPELAWELD handles peak loads under toughest conditions with quiet surety.

Test this seasoned Copeland performer under your own conditions. We'll be glad to supply a sample for such tests. You'll appreciate the unusually high capacity, economy of operation and cool-running smoothness. For original equipment or replacement, specify COPELAWELD . . . the dependable Copeland welded hermetic.

REFRIGERATION UNITS
(OPEN - TYPE AND COPELAMETIC)
WATER COOLERS



1/2 H. P. through 1 1/2 H. P.

SINCE 1918

Copeland
REFRIGERATION

CORPORATION, Sidney, Ohio

San Francisco Code Gets 'City Printing'

(Concluded from Page 1, Col. 4) The code went to the Board of Supervisors and was passed by that body. It now goes to Mayor George Christopher who has up to 10 days before signing or vetoing it. He is expected to sign.

The new code will become effective 30 days after the day it is signed by the mayor.

The Board of Supervisors has appropriated \$16,000 in the budget for a commercial printing of the code. Lester C. Bush, superintendent of the bureau of building inspection, expects to arrange for publication in loose leaf binder form so supplements may be inserted.

Superintendent Bush said it is the intention of his bureau to provide for needed revisions each year.

The new code provides a

Board of Examiners. Its function is to consider new materials, new methods, and new types of construction, and decide whether they should be included in the code.

The Board also has the duty to determine if variances will be permitted from the code, and to make reasonable interpretations of the code.

The five members of the Board will be appointed by Sherman Duckel, director of public works, subject to the approval of Tom Brooks, chief administrative officer.

Membership shall consist of a structural engineer, mechanical engineer, electrical engineer, general contractor, and architect.

California law gives a contractor the right to work on equipment of all sizes in the

field covered by his license, and anywhere in the state.

Contractor's License

Mechanical refrigeration is covered by Article 41 of the new code. Refrigeration contractors who qualify and hold a State C-38 license may work with equipment for the control of air temperatures below 50° F.

Air conditioning is covered by Article 38 of the new code. Ventilating and air conditioning contractors holding a State C-20 license may work on equipment for air temperatures of 50° F. and above.

Having qualified by examination for a C-20 license, the holder may obtain a supplemental or SC-38 license to do refrigeration contracting by merely applying for it.

Conversely, having qualified by examination for a C-38 and becoming a State licensed re-

frigeration contractor, the holder may obtain a license to do air conditioning contracting merely by applying for an SC-20.

How State Rule Works

This established rule of the contractors' state license board enables a holder of both licenses to work on equipment of any size, large or small, in the field of air conditioning, or in the field of refrigeration, anywhere in California.

San Francisco's new code provides that owners of air conditioning and refrigeration service shops not holding the proper state contractor's license must obtain from the bureau of building inspection of the department of public works, a registration which will be granted after proving five years' experience as journeyman and passing the examination stipulated by the Refrigeration and

What Is Provided by City Registration

Shops which hold city registration are allowed to work on equipment up to and including the ratings which are given to exempt equipment from payment of mechanical inspection fees.

Refrigeration exceptions provide the article on permits and fees does not apply to approved self-contained refrigerating systems containing not more than 15 lbs of Group 1 refrigerant, and if such systems contain not more than 10 lbs. of Group 1 refrigerant no permit will be required for repairs.

Refrigeration Exemptions

Approved refrigerating systems, remote type, of not more than 1 hp. containing Group 1 refrigerants are exempted, except for repairs which total \$100 or more.

Systems of not more than 1/2 hp. with Group 2 and 3 refrigerants are exempted, except for repairs which total \$100 or more.

Commercial or industrial plants employing a full time plant engineer are exempted from permits and fees except for installation of new equipment. These plant owners must register with the city.

Comfort Cooling Exemptions

Air conditioning exceptions provide permits and fees do not apply to approved self-contained air conditioning systems with not more than 15 lbs. of Group 1 refrigerant, except for repairs costing \$100 or more. However, if the system has not more than 10 lbs. of Group 1 refrigerant no repair permit is required.

Approved air conditioning systems, remote, of not more than 5-hp. compressor rating with Group 1 refrigerants, are exempted from permits and fees except for repairs of \$100 or more. If air conditioning systems are not above 2 1/2 hp. no permit is required for repairs.

Commercial or industrial plants with a full time plant engineer are exempted from air conditioning permits and fees, just as for refrigeration.

Cite Factors Likely To Boost Steel Price

PITTSBURGH—Two developments last week pointed up the possibility of higher steel prices within a few months, and one of them could even lead to shortages.

Steel labor negotiations in May and June will probably bring some increased costs, and with it increased prices. If steel producers buck labor's demands, a strike is a possibility. Auto companies were reported stepping up steel purchases, and this was viewed as a hedge against strike possibilities.

The other factor is the statements made by prominent steel company executives to the effect that higher prices are needed to meet the needs for the billion-dollar-a-year expansion which the steel industry says it needs in the next three years.

NOW! Every forced air heating owner becomes a cooling prospect automatically



New Mueller Climatrol add-on unit permits installation with any forced air heating system

No problem finding prospects for this self-contained, water-cooled summer air conditioner. Every customer with forced air heating is a prime prospect!

INSTALLATION FLEXIBILITY UNLIMITED. Return air can be brought in at either top or bottom of left side or where necessary, at lower half of right side. Optional blower packages available with either vertical or horizontal (both right and left hand) discharge,

in a range of sizes from 800 to 2000 cfm that means further flexibility. Any arrangement you need in tight installation spots!

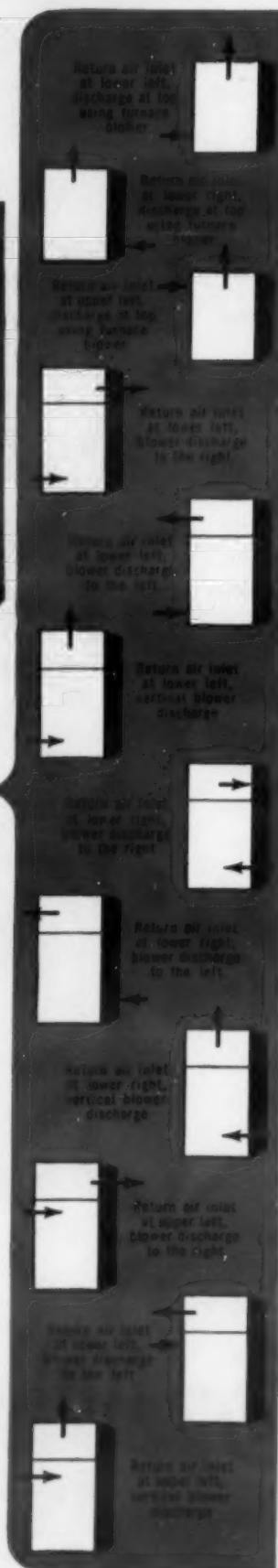
CONVENIENT, TOO. Shipped completely assembled, charged, ready for easy installation.

Write for facts, dimensions, specifications—to Mueller Climatrol, Dept. 46, 2056 W. Oklahoma Ave., Milwaukee 15, Wis.

See your man from

Mueller Climatrol

...sales are turning greener every day

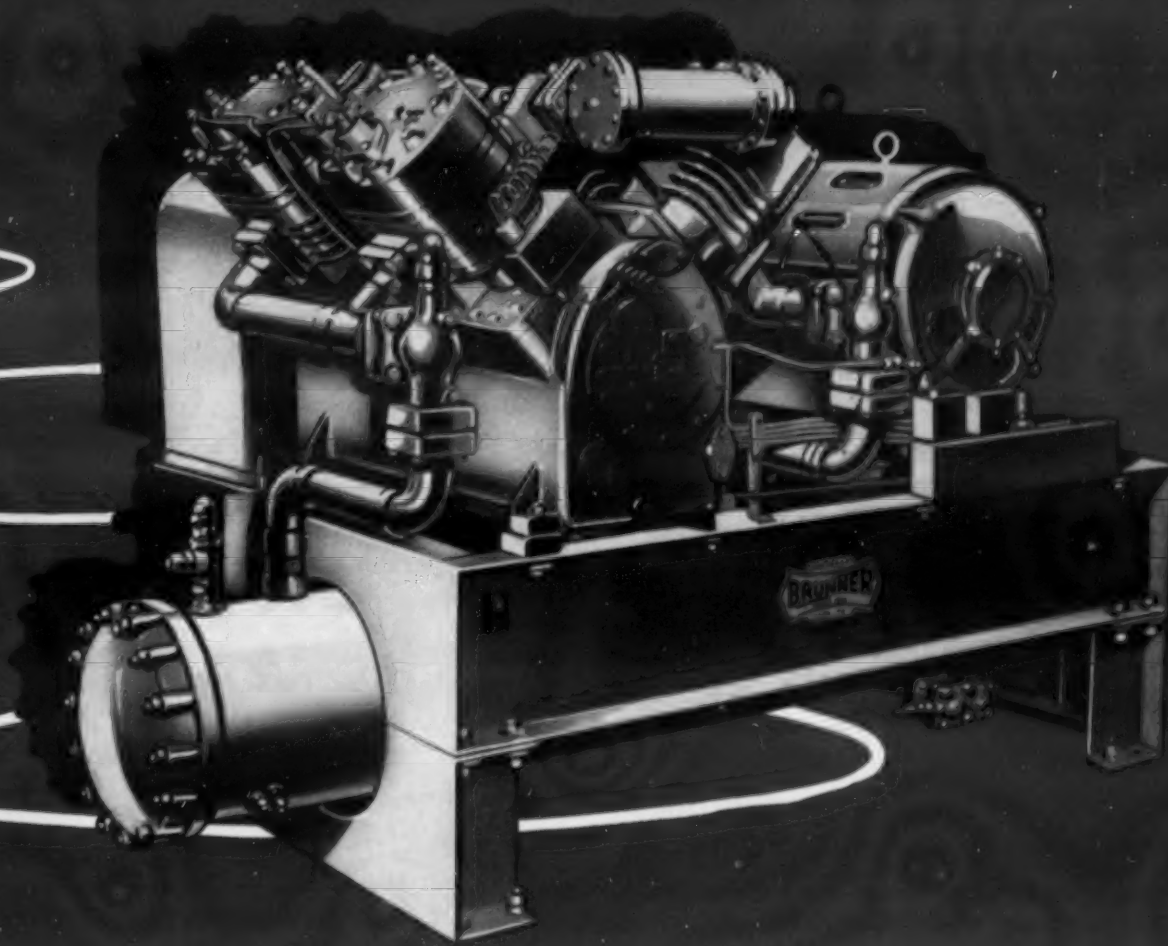


1906



Engineered for entertainment, the stereoscope . . . popular in 1906 . . . was the forerunner of modern 3-D photography. It was in 1906 that the first Brunner-engineered product was built.

TODAY Brunner engineering offers the most complete line of Air Conditioning Condensing Units available from a single source.



Whether the job be large or small, there's a right Brunner Condensing Unit for every remote Air Conditioning application. Complete size range from $\frac{1}{4}$ H.P. through 100 H.P. Self-contained BAC units in 3, 5, 7½ and 10 H.P. models.

ALSO AVAILABLE
AIR-COOLED CONDENSING UNIT FOR OUTDOOR INSTALLATION
—in 2-, 3- and 5-ton capacities, with protective shelter.

BRUNNER MANUFACTURING COMPANY, UTICA, N. Y.

The Brunner Co., Gainesville, Ga. In Canada: Brunner Corp. (Canada) Ltd., Toronto, Ontario

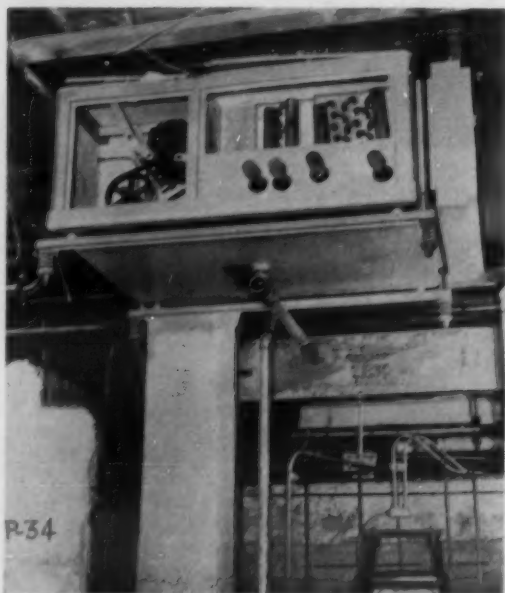


Houston Club Conditions Air Two Times To Assure Patrons the Finest To Breathe

HOUSTON, Texas—The atmosphere of the elite new Houston Club is one of quiet elegance. You get the impression that no effort has been spared for the utmost comfort of members and guests. Everything is the finest . . . even the air the members breathe. (In addition to being Texas air, it is thoroughly conditioned).

Before it enters the exclusive confines of the club, air is pre-conditioned in a penthouse equipment room. First, excess moisture is removed. Then the temperature is modified by passing through a battery of Recold coils—chilled water cooling coils, hot water heating coils, and steam heating coils. Air is then directed to one of 35 Recold air

Comfort of guests in the modern new Houston Club is assured by a carefully planned air conditioning system. Shown at right are two ceiling mounted Recold air conditioning units. The unit in the background is supplying conditioned air to one of the apartments. The unit in the foreground is for an apartment which was not yet finished when the photo was taken.



This Recold model UVT-200 air conditioning unit supplies conditioned air to the main lobby of the magnificent new Houston Club. The unit is equipped with a six-row, chilled water, cooling coil and a two-row, hot water, heating coil.

conditioning units for further refinement before being offered for breathing purposes.

The air conditioning units

vary in size according to the job they have to do. They range from 3 to 40 sq. ft. of face area. Also included are several Recold Multi-Zone units. These air conditioners can blow hot and cold at the same time.

A system of dampers permits them to vary the temperature of air delivered to different locations. This enables them to satisfy individual preferences for temperature or to compensate for load differentials.

All of these Recold air conditioning units are equipped with chilled water cooling coils and hot water heating coils to take care of the sensible heat load and the internal latent heat. Mechanical facilities for the chilled and hot water are located in the basement of the building. The club quarters, situated midway in the new Houston Club building, occupy the seventh, eighth, ninth, and tenth floors.

Architect for the club quarters is Wilson, Morris and Crane; mechanical consulting engineer, Dale S. Cooper and Associates; mechanical contractor, Charles G. Heyne & Co. All are Houston firms.

Trane Plans Expansion Following Record Year For Compressor Line

LA CROSSE, Wis. — 1955 Trane reciprocating compressor sales were the highest ever recorded by the company, according to Trane President D. C. Minard.

"This, coupled with the fact that we anticipate further sales increases on this product line in 1956, makes it necessary for us to expand our facilities for the manufacture of the line as rapidly as possible," Minard said.

The company expects to take bids for the construction of a 24,000-sq. ft., one-story-above-grade addition to compressor Plant 6 during late March, based on specifications being prepared by Schubert, Sorenson & Associates, Inc.

Post Offices To Use Cooling In Areas Where Private Business Does

WASHINGTON, D. C.—Under liberalized criteria now followed by the Post Office Department, air conditioning is being approved in new or modernized post offices in any area where business or industry uses it, *Architectural Forum* reports.

Air conditioning reduces absenteeism and increases employees' efficiency when working, department officials said. "Expanding use of air conditioning is another building 'tool' being used to cut Post Office expenses."

LINE UP with SPORLAN

for

Right-Down-the-Line
PEAK PERFORMANCE
on All Air Conditioning
Installations



No matter how large or small the system, there's a perfect Sporlan hook-up available from Catch-All to Distributor

Everyone knows about Sporlan Catch-Alls, the perfect Filter-Driers. They assure you filtering instead of straining. Dirt-free, sludge-free systems are the result. Harmful corrosive acids are adsorbed and retained. In addition, they dry down to an end point so low that any remaining moisture is absolutely harmless.

The new Sporlan Solenoid Valves offer even greater Peak Performance with the new power-packed Blue Seal Coil. No more worries over electrical failures. They're really tight closing, too!

Sporlan Thermostatic Expansion Valves with the exclusive Flow-Master element, are your guarantee against hunting. Alternately starved and flooded evaporators will never plague you again with these Peak Performers!

Uniform distribution to all circuits are yours with Sporlan Peak Performance Distributors. Their perfectly designed conical button and interchangeable nozzles give them greater flexibility and a much larger range of application.



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VALVE COMPANY

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So

for Right-Down-The-Line Peak Performance
on all air conditioning systems... Line up
with Sporlan and get Peak Performance
on every installation.

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TV

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PRESSTITE
PERMAGUM®
Sealing Compound

- for sealing joints and seams
- for plugging and caulking in
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See your wholesaler or WRITE

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Dealer after dealer reports—
"HOTTEST PROMOTION EVER HELD IN OUR STORE"!

KELVINATOR-LAND



**GROSS UP! NET UP! Dealers Report Record Breaking Volume on
 NEW 1956 SPECIAL PROMOTIONAL MODELS**

SPECIAL VALUE!



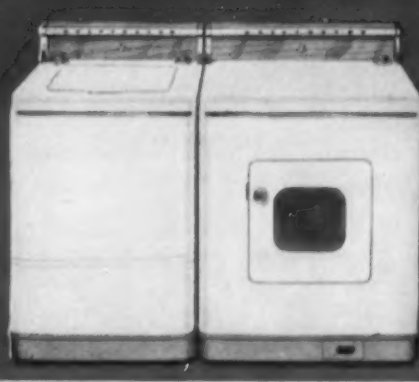
12 1/4 cu. ft. Automatic Defrosting Kelvinator at a price that will make history
 Here is a big-family size Kelvinator that gives the customer more for her money than she has seen in years, and it's priced way down for big volume and fast turn-over.

SPECIAL VALUE!



Kelvinator Automatic Electric Range at an unheard-of low price!
 A terrific buy for your customers—a tremendous drawing card for your store. A deluxe Kelvinator with exclusive disposable oven linings at a price that just can't be beaten.

SPECIAL VALUE!



Kelvinator matching Automatic Washer and Dryer priced under competition
 Here's the pair that really puts you in the driver's seat in the home laundry business. You can offer both of them to your customers at a package price that will ring bells on your cash register.

SPECIAL VALUE!



Kelvinator 18 cu. ft. Upright Freezer
 No other freezer gives so much storage space in such compact cabinet space. It's a bargain to begin with—and Kelvinator gives you a terrific competitive advantage in a special Kelvinator-Land buy!

Priced to let you lead the competitive parade!!

IT'S A PROMOTION THAT PUTS THE FULL
 FORCE OF AMERICA'S GREATEST
 SELLING MEDIUM...

Disneyland...



**RIGHT IN
 YOUR
 STORE**

IT'S A
 PROMOTION
 WITH EVERY
 SALES TOOL
 YOU NEED, WITH
 RESEARCHED,
 PROVED, PROSPECT-
 GETTERS AND
 CLOSERS

It's the promotion
 that means more
 business and more
 dollars—that will
 boost your sales of
 the whole Kelvinator
 line. Get on the
 bandwagon. Head for
 Profitland, with
 Kelvinator-Land—
 and start now!

Kelvinator

Division of American Motors Corp., Detroit 32, Mich.

American Motors Means

 More for Americans

**KELVINATOR—THE MOST VALUABLE
 FRANCHISE IN THE INDUSTRY TODAY!**

Suggestions on Financing for Small Dealers

Give Bank Credit Statement, Ask Banker's Advice, Build Credit and Sales Reputation; Use Warehouse, Floor-Plan, Unsecured, Instalment, Collateral Loans, Discount Sales

CHICAGO—"There is one important factor to be considered when entering into a recourse arrangement with a bank or finance company, and that is their reputation for checking credits carefully and their ability as a collection agency."

"This is of the utmost importance to you as I have heard of many dealers discounting paper on a recourse basis, only to find that the bank failed to use any collection efforts on the account and merely handed the contract back to the dealer and asked for their money."

That was one of several points stressed by Emerson Morris, vice president of the National Bank of Commerce of Chicago, in a recent talk on

"Financing for the Small Dealer," before NARDA's convention.

Morris first referred to NARDA's 1954 costs-of-doing-business survey. He said the figures, when broken down by sales volume classification, "reflect a good profit margin when sales run over \$150,000 per year, but loss of 1% when sales are less than \$75,000 per year."

"Cost of goods sold and five major operating costs were higher for this group than for the larger dealers based on percentage of sales."

"This graphically proves that present high overhead costs such as office salaries, delivery expense, occupancy expense, advertising, etc., all of which are

at an all-time peak, require that sales be in high volume at a fair markup to overcome the minimum overhead of doing business."

What Survey Showed About Dealer Setups

Morris said he recently reviewed the statement studies of about 140 lines of business located in all parts of the country. The survey covered manufacturing, wholesale business, and retail sales.

"The 1954 income statements reflect that the retail appliance dealer has approximately the same profit percentage as other retail dealers. . . . The wholesale concerns had a lower profit percentage but, of course, made

up with larger volume. Manufacturing firms had a much higher profit on their sales. . . .

"I noticed, too, that retail appliance dealers manage their money somewhat differently when they do a volume business. They carry a proportionately smaller inventory and use bank credit more extensively. They owe less to the trade and use bank credit to discount their bills."

"Among the problems named by your membership and listed in your survey," Morris continued, "is shortage of dealer capital."

"How long is it since you have gone to your bank to talk to a loaning officer? Perhaps you don't want a loan, but there

would be no harm in giving the bank your statement for its credit file unless, of course, there is something you want to hide."

"Your bank can only give intelligent information about you and your business if they have your balance sheet. If you can find a profitable use for money in your business, it would be to your advantage to discuss your balance sheet and P & L statement with your banker."

"Acquaint him with your operations and ask for his advice in money matters. Do not hesitate to suggest that he give your store some of his personal business. Ask him to pay you a visit where he will be exposed to your salesmanship."

Bank Can Become Good Customer

"I find on checking back my purchases for the past year that they total 13 appliance items, some of which were purchased as gifts, but they total \$684. Your bank may become a good customer as they are continually in need of certain appliances, such as electric fans, dehumidifiers, etc."

Morris said almost every type of business is able to use bank credit at a profit, either to take advantage of trade discounts or to make special purchases which are especially attractive on a cash basis.

"Your own reputation and business background is the basis for the type of credit that will be available to you," he pointed out. "Even a very small business with limited capital is entitled to secured credit which can take many forms."

"For instance, your bank may be unwilling to give unsecured credit, but if you approach them for a warehouse loan to cover quantity purchase of refrigerators or stoves which have been offered to you at an attractive price and you are capable of putting up 10 to 20% of the purchase price, these units could be placed in a warehouse and the bank would be willing to finance the remaining 80 or 90% of cost. As the units are sold you will repay your loan."

"Loans of this character are not difficult to obtain, providing you can prove your ability to move merchandise within a reasonable time."

"Another type of credit is the trust receipt floor plan. This type loan is used extensively in the automobile field and to some extent by appliance dealers."

Bank Bills Merchandise Back to the Mfr.

"The method of handling is somewhat the same as warehouse receipt loans with the exception that the merchandise should be billed by the manufacturer to the bank, who will make a similar advance but retain title to the merchandise until it is sold by you and the amount advanced repaid."

"In this case, however, the merchandise is placed either in your store or your warehouse and is subject to periodic verification by the financing organization."

"Both of the above plans are available to dealers with moderate cash resources or to dealers with greater financial strength (Concluded on Page 11, Col. 1)

It's great to be a Carrier dealer... with all these Icemakers to sell!

It's plenty tough, selling from a so-called "complete line" that consists of two or three models. Especially when you're trying to sell ice machines to a lot of different ice-users with a variety of needs.

There are no gaps in the Carrier line of Icemakers and Flakemasters. You have 11 models to sell. There's one to match every ice requirement.

What's more, there's a Capacity Certificate to cover every model, every operating condition. No vague promises of "up to so many pounds

of ice per day." Your prospect knows he'll get every pound of ice he needs when he buys a Carrier. It's certified in writing!

Look what else you have to sell: Icemakers that turn out cubes plus three grades of crushed ice. Flake-masters with simplified operation for making hard, dry flaked ice with certified capacities that apply to your location. Rugged, compact units! Completely automatic—even to self-cleaning! And each bearing the famous Carrier nameplate!



1 Model 26H3S-100 Icemaker



2 Model 26H3Cr-100 Icemaker



3, 4 Model 26H3S-160 Icemaker
Model 26H3Cr-160 Icemaker



5, 6 Model 26H5S-160 Icemaker
Model 26H5Cr-160 Icemaker



7, 8 Model 26H5S-240 Icemaker
Model 26H5Cr-240 Icemaker



9 Model 26L10WC-500 Flakemaster



10 Model 26L10AC-500
Air-cooled Flakemaster

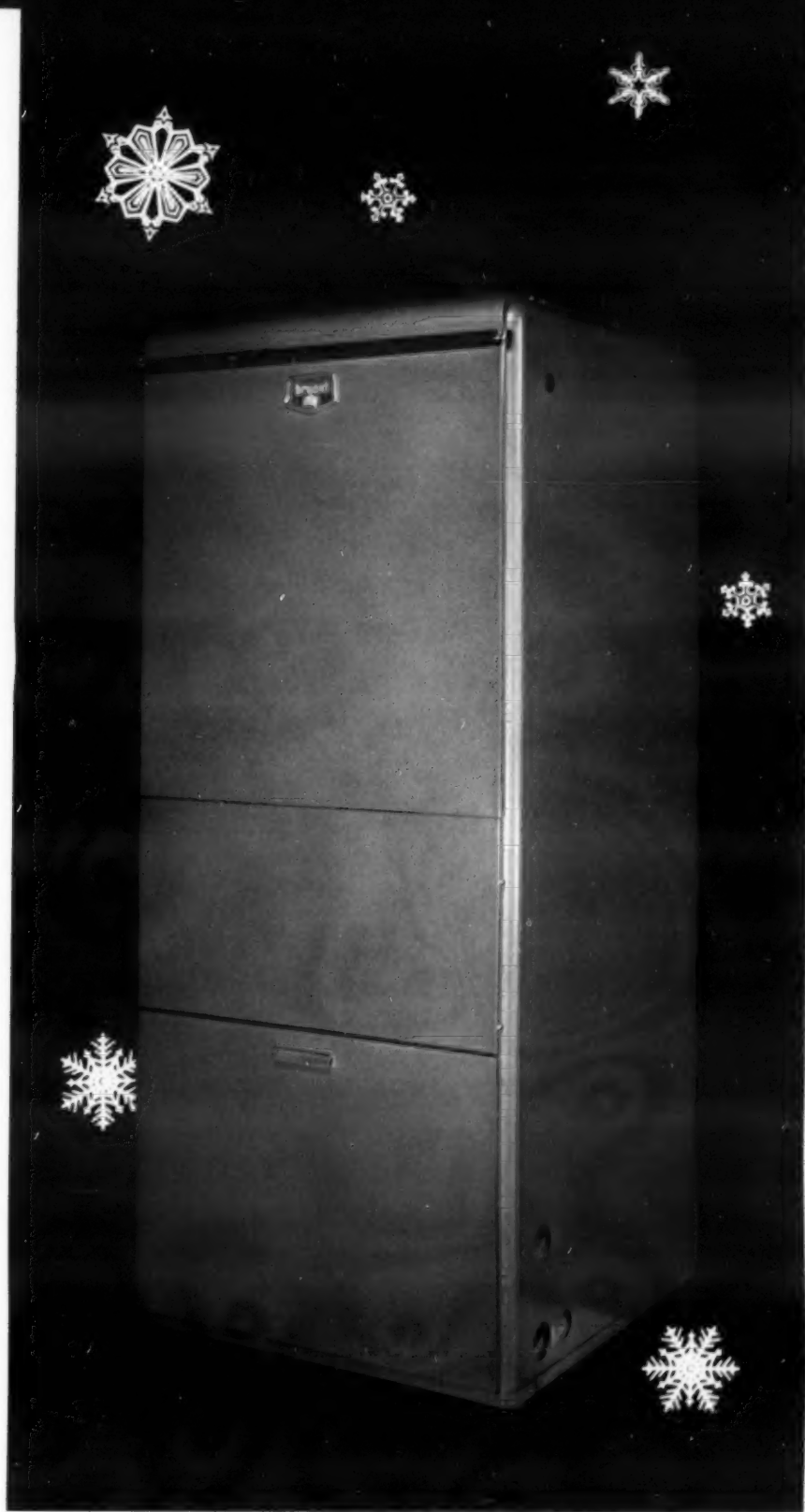


11 Model 26L20WC-500 Flakemaster

It's time to call your Carrier Distributor. You'll find his name in the Classified Telephone Directory. Or write Carrier Corporation, Syracuse, New York.

Carrier

AUTOMATIC ICE MACHINES



Model 590 — Residential Air Conditioner

GROW BIGGER WITH



and here's one way you can

GROW BIGGER WITH

bryant



THE GREATEST PROFIT BUILDING
PROGRAM EVER OFFERED—THE NEW

bryant
**Dealer
Development
Program**

To help you sell **MORE** heating
and air-conditioning equipment
... profitably

Bryant now offers you a Dealer Development Program that *will* help you sell more ... more profitably! There are seven steps in the complete program. Each is designed to assist you in one phase of your business. This is a practical, down-to-earth program prepared from years of experience in helping heating and air-conditioning dealers conduct a better, more profitable business. You have to see the details to fully appreciate its many benefits. But just to give you an idea of the scope of the program...



First time a program like this has ever been offered to the heating and air-conditioning dealer. It is completely explained in this beautiful 64-page book. Ask your Bryant Distributor for a copy and other details. Act today!

.....HERE ARE A FEW OF THE TOOLS.....

**CHART TALKS THAT
REALLY SELL**

... in full color. Charts are in a handsome, flip-over binder, with plastic envelopes to hold the pages. Permits keeping story up to date as well as the insertion of local material.



**SURVEY AND ESTIMATE
FORMS**

... a complete set for your use with your customers. There is a detailed form for each type of equipment called for by the job. Makes estimating simple and accurate and easy for your customers to understand.



**BRYANT'S EXCLUSIVE
F. O. B. HANDBOOK**

... this handy, pocket-size booklet lists all features of each individual piece of equipment, together with corresponding owner benefits. Makes selling easy. A terrific sales tool.



DEALER'S GUIDES

... the most complete guides to estimating the heating and cooling requirements of a home. Make it possible to make complete engineering layouts and calculations in less than an hour's time. No other guides just like these.



AND THERE'S LOTS MORE. FOR THE COMPLETE STORY—AND HOW YOU CAN TAKE FULL ADVANTAGE OF THIS COMPLETE PROFIT-PRODUCING PROGRAM—CALL YOUR BRYANT DISTRIBUTOR TODAY.

and here are 8 MORE reasons why you'll GROW BIGGER WITH BRYANT

1. Your customers know and trust the name Bryant ... famous for 47 years as the leading name in home comfort. That's why a Bryant is easier to sell.
2. From small home to mansion, or for store or factory, there's a Bryant to fit the budget and the need in gas or oil furnaces, boilers, air conditioners, space heaters, unit heaters, water heaters.
3. You build customer confidence when you install Bryant ... the highest quality heating, cooling and water heating equipment made.
4. You profit more with Bryant because of the Bryant

Business Development Program, the most complete program in the industry.

5. You get *sales building tools* that increase your sales and profits.
6. You have the help of a nearby Bryant distributor who gives you *complete engineering, sales and service help*.
7. You are backed up by *powerful national advertising* designed to help you.
8. You are given the most complete *co-op advertising* to build sales in your own community offered by any manufacturer in the industry.

Don't miss this tremendous opportunity to build your profits through the BRYANT OPERATION PROFIT and the Bryant Dealer Development Program. If you want to make more sales, more profits, it will pay you to get the full details. So call your Bryant Distributor today, or write, Bryant, 48 Monument Circle, Indianapolis 4, Indiana.



be Mr. B
in your community

and GROW BIGGER with

bryant



Financing Suggestions--

(Concluded from Page 8, Col. 5)

who do not wish to invest their own capital in additional inventory. Of course, secured loans are available to dealers where the delivered equipment is used as collateral or in the case of long term financing, under a mortgage on the dealer's property.

"Then again there is the dealer with a well balanced statement who has demonstrated his ability to operate at a profit. This dealer may apply to a bank for unsecured credit, which may be moderate or large depending on the firm's financial worth.

Short Term Loans Of Great Benefit

"Loans of this type are made on 30, 60, or 90-day terms and are of great benefit to a dealer in his usual course of business.

"Well established dealers with good working capital ratios and substantial net worth should apply to their bank for a line of credit. This is merely an arrangement with the bank for periodic loans during the year up to a fixed amount.

"Generally once a year the dealer discusses his financial statement with the loaning officer and a maximum of his loan advances are agreed upon. Further negotiations are unnecessary.

"In future years the line is either increased or decreased, depending on the successful operation of the business. Most large companies operate on an established line of credit.

"There are, of course, other types of loans, such as installment loans, repayable in monthly instalments over a period of a year or two. These may be secured or unsecured.

"There is the collateral loan secured by various types of collateral including stocks, bonds, or life insurance cash values. The interest paid on a loan is a combination of two factors—first the use of the money without risk, plus the premium for risk.

"This is vividly portrayed where loans are made on Government securities at a rate equivalent to the return on the securities themselves. A loan of this type is considered to be practically riskless.

"The rate in this case may run anywhere from 2% to 2½%. Above this rate is generally the premium paid for risk and may run anywhere from 3% to 6%.

Establish Mutually Satisfactory Discounting

"You should endeavor to establish a mutually satisfactory discounting arrangement with your bank. As you are no doubt aware there are a number of ways to discount your sales contracts.

"Probably the most prominent and best known is the outright sale on a non-recourse basis. This has a number of advantages but may not be the best from your standpoint.

"The advantages are that you have no responsibility for payment of the account and it is therefore unnecessary for you to show a contingent liability on

your financial statement. However, your customer is required to pay a high discount rate in all cases.

"The second arrangement is a full recourse arrangement where you assume the responsibility for payment of the contract in the event your customer defaults. However, although you may charge the going rate on contracts, you should be entitled to a lower rate by your bank on recourse paper. This difference is often set up as a credit to your reserve account

and returned to you at regular intervals.

"Recourse contracts are more often acceptable to your bank than non-recourse accounts.

"I was discussing this matter a few days ago with one of our recourse dealers who operates an appliance store in one of our suburban towns.

"He said he didn't want to do business in any other way. He has been charging a 10% rate for many years, discounting with us at 6%.

"He said, true, he had to go out and see a slow account once in a while and ask for the payment but he usually made the

call for the dual purpose of keeping the customer prompt in his payments and using it as a lead for more business."

"There is another form of discounting, known as limited recourse," Morris said.

"In 1950 we established a plan known as the 4-6% arrangement wherein our dealers charged a rate of 10% on appliance financing and we discounted the contracts for them at 6%. The 4% difference was credited to a reserve in the dealer's name.

"However, our contract read that credit losses not covered by our insurance protection could be charged to this reserve,

and the balance remaining would be divided equally between the dealer and the bank as the contracts paid out.

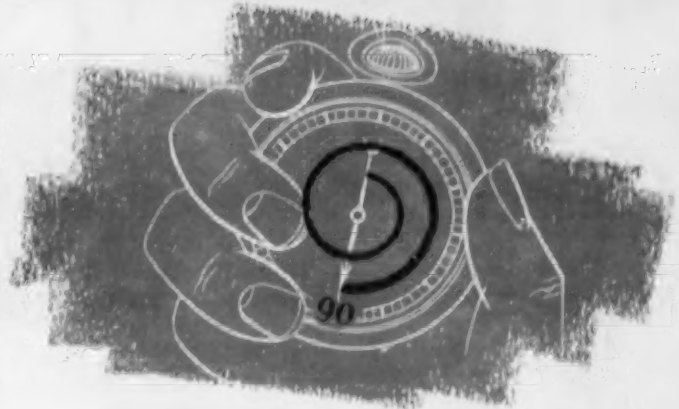
"The dealer agreed to assist in the resale of items repossessed by the bank and the bank agreed to reverse all unearned charges from the date of default. Credit losses I would say ran approximately ½ of 1%, so the reserve distribution was quite attractive to both the dealer and the bank.

"This reserve, which is established strictly from the interest, permitted the bank to accept a few border line contracts which meant extra sales."

PENN'S "90-SECOND DECISION" PROTECTS YOUR COMPRESSORS AGAINST COSTLY DAMAGE



Penn Series 275 oil protection control operates on the difference between the oil pressure line and the crankcase pressure. Trip-free time delay switch is completely compensated to assure uniform timing under all ambient conditions.



Series 275 Oil Protection Control Shuts Compressor Off If Oil Pressure Doesn't Build Up Within A Safe Period

Guarding your refrigeration compressor against damage if oil pressure fails is the job that the Penn Series 275 oil protection control does so well. A sudden oil pressure drop may be a momentary fluctuation—or it may be a serious threat to seals and bearings. There's a critical period . . . say 90 seconds . . . in which pressure must build up to a safe level or it is dangerous to let the compressor continue running.

Here's the way Penn does the job. If oil pressure does not build up when the compressor is turned on, or it dips too low during the normal operating cycle, Penn 275 closely watches pressure readings. In a precise time period—those critical 90 seconds again—pressure must regain a safe level or Penn will automatically shut the compressor off. Then, the trouble can be corrected before damage occurs.

Learn more about this low-cost guard for your refrigeration compressors and other pressure lubricated equipment. Penn will protect you against severe losses in time and money. Get all the details from your compressor manufacturer or wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

For more information about products advertised on this page use Information Center, page 36.

35 Packaged Air Conditioning Units Installed In 6-Story Department Store Without Interrupting Normal Operations

MEMPHIS — Bry's, Memphis department store, in the "greatest modernization program in the 53-year history of the store," was completely equipped this past fall with a \$250,000 air conditioning system.

Designed to cool the entire store, over 200,000 sq. ft. of floor space, the system consists of 35 Airtemp "packaged" water-cooled air conditioners. These include 27 15-ton units, five 11-ton units, and three 8-ton units. A 500-ton cooling tower is located on the roof of the six-story building.

The installation of the 35 conditioners, piping, and ductwork was completed without interrupting the normal operation of the store, store officials said.

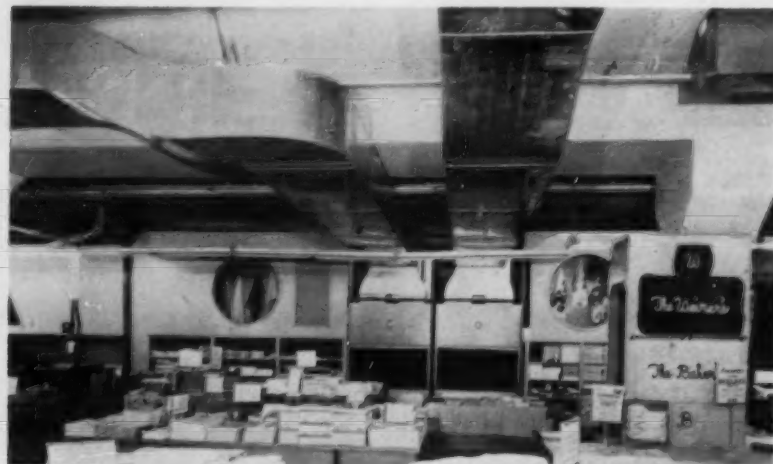
Air Temperature Inc., Memphis, was installing Airtemp



SUPPLY ductwork in Bry's, Memphis department store, is threaded through store vacuum tubes, plumbing, and conduit lines at ceiling level for 15-ton packaged air conditioners in the second floor linen department.

dealer. Close coupling of units, recessing of units, and placement behind partitions, minimized the loss of floor selling space throughout the store.

Alfred M. Alperin, Air Temperature engineer; Sidney Barbanell of New York, consulting engineer; Dawkins Electric Co., which handled the electrical



DUCT distribution system in Bry's large bargain basement shown prior to painting. Close coupling of the 15-ton units was utilized wherever possible to minimize loss of selling space.

contract; and C. L. Osenbaugh of Memphis Light, Gas and Water Div., who supervised electrical distribution, participated in the department store project.

Miami Contractor Offers Round-the-Clock Service On Commercial Systems

MIAMI, Fla. — A commercial air conditioning and refrigeration contracting firm was organized here recently, it was reported.

Biscayne Air Cooling Sales & Service, Inc. offers design, layout, and installation of air conditioning systems for office buildings, hotels, motels, factories, and commercial establishments, it was stated. Large system commercial refrigeration installations are also included.

Guilbert Zapf and Paul E. Heinmuller are chief executives of the new company.

Zapf, president, will direct over-all operations and act as fiscal officer. Heinmuller, executive vice president, will have charge of installations and service.

Zapf formerly was manager of a local air conditioning contractor company. Previously he was associated with a valve manufacturer in Cincinnati for 29 years, it was added.

Heinmuller previously supervised installations for another local air conditioning and commercial refrigeration firm. He came from Maryland where he had been an executive with an air conditioning and refrigeration contractor.

The new corporation has been named South Florida sales and service factory representative for Typhoon Air Conditioning Co. and Typhoon Prop-R-Temp Co., division of Hupp Corp.

"Our radio dispatched trucks and emergency cars will give service 24 hours daily," Heinmuller declared.

Freeman Firm Named Carrier Dealer In S. C.

GREENSVILLE, S. C.—Freeman Heating & Air Conditioning Co. has opened for business under the ownership and management of Francis W. Freeman.

The new firm has been appointed a dealer for Carrier heating and air conditioning equipment for residential and commercial installation.

Freeman, a registered engineer, was once employed by the Oak Ridge National Laboratory for air conditioning design and later served as chief air conditioning engineer for Daniel Construction Co.

For the past three years he has served as chief engineer for the General Electric distributor of heating and air conditioning equipment here.

bring head pressure
DOWN

...keep
operating efficiency
UP...

with **anco** condenser cleaner
and cooling water treatment...

ANCO Condenser Cleaner removes scale and rust from condensers within 2 to 15 hours, depending on the thickness of the scale. The head pressure drops to normal and the condenser's efficiency is restored. ANCO Condenser Cleaner is an exclusive dry formula which is simply dissolved in the sump while the system is in operation. It is equally effective in evaporative condensers and those with separate cooling towers.

ANCO COOLING WATER TREATMENT

Prevents scale, rust and pitting in new or recently-cleaned condensers. It is packed

in convenient cans, ready to use. Just place the can in the condenser pan or tower basin where the contents gradually dissolve into the cooling water, keeping the system clean and operating at peak efficiency. Absolutely harmless to all metal parts.

Free WATER TREATMENT MANUAL

A complete booklet on the control of scale, rust and algae in refrigeration and air conditioning systems. No service department should be without a copy. It's yours for the asking.

Sold by wholesalers of air conditioning
and refrigeration supplies

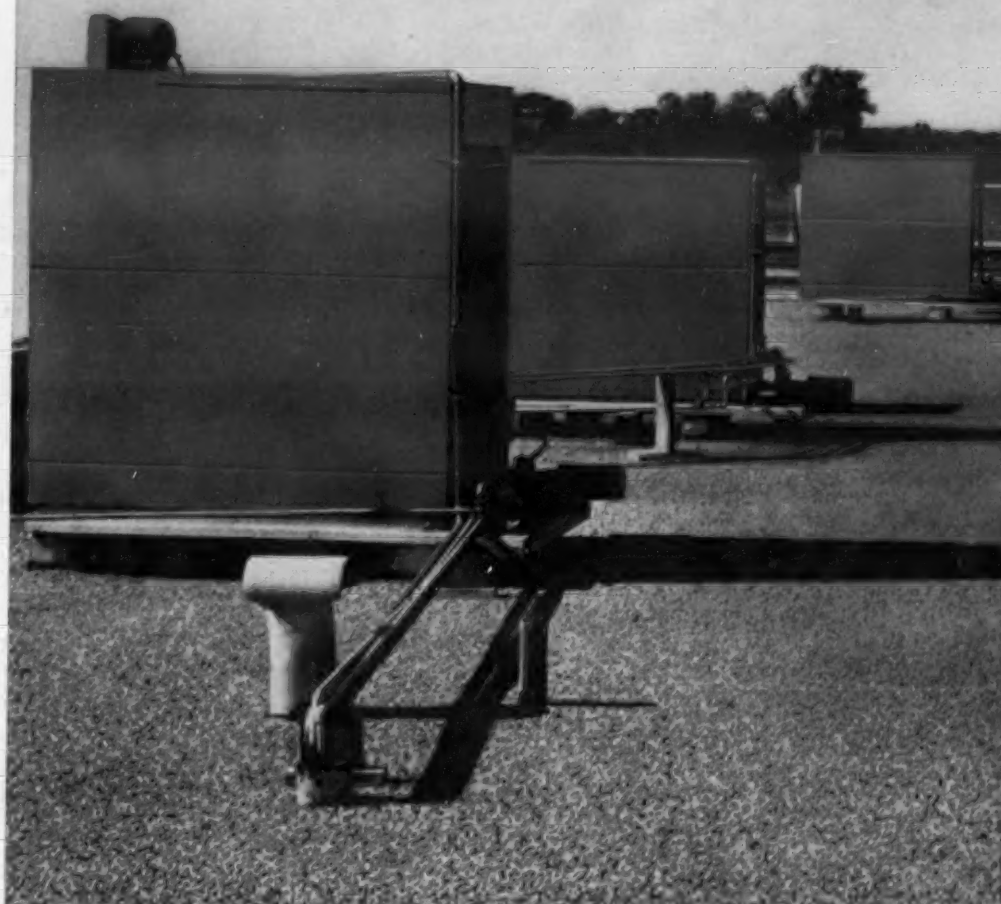
SPECIALISTS IN MAKING
WATER BEHAVE



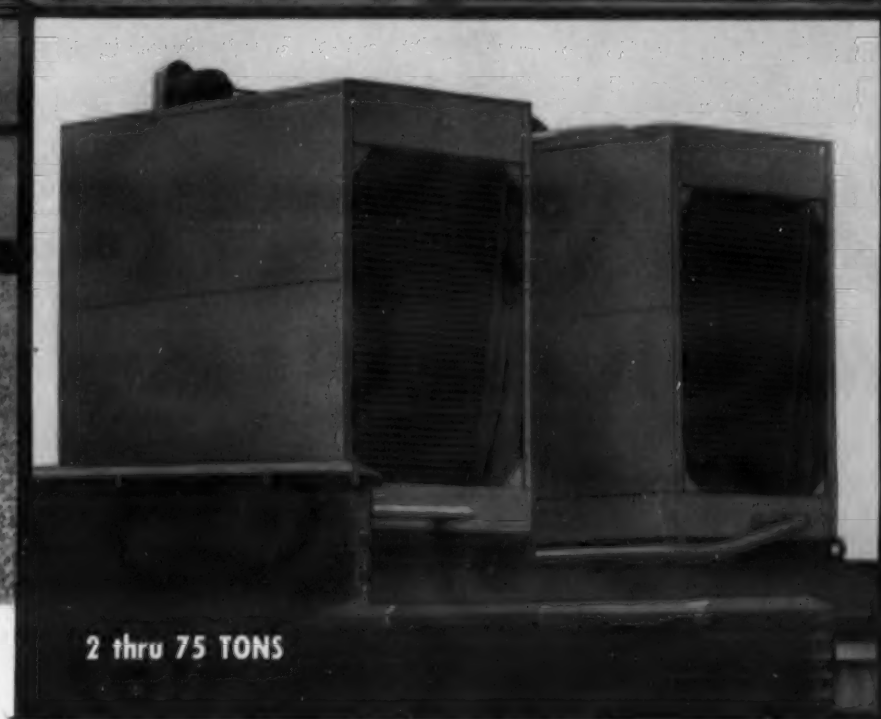
Anderson Chemical Company, INC.

Box 1424 • MACON, GEORGIA • Phone: 2-7962

10 MAJOR FOOD CHAINS* SPECIFY HALSTEAD & MITCHELL COOLING TOWERS!



*Names sent on request



Why?

Chain store *engineering departments* specify cooling tower quality—as they do the quality of all other mechanical equipment which goes into their food stores. That's why ten of the country's major chains now specify Halstead & Mitchell Cooling Towers.

The longer equipment continues to operate efficiently, the lower its cost per year becomes. That's basic economics, and that's why 9 of the 10 chains which have specified H & M, specify in particular the CT Cooling Tower. The CT is the tower that lasts *years* longer.

ONLY **HM** CT TOWERS OFFER ALL THESE ADVANTAGES

10-Gauge Sheet Steel Cabinets

Halstead & Mitchell is the only cooling tower manufacturer to make cabinets of both 10-gauge and 14-gauge steel as part of its regularly scheduled production. The extra-heavy 10-gauge steel stands up to corrosive attack by water and chemicals for years longer than the lighter 14-gauge steel.



BY THE YEAR, 10-GAUGE TOWERS COST LESS

For example, on a cooling tower which might cost \$3,000 installed, extra cost of 10-gauge over 14-gauge steel would be about \$140 . . . less than 6% of total cost. For this 6% the owner gets years of added service, for tower life is in a real sense proportional to steel thickness.

The Protected Steel Concept

Here's real protection for sheet steel cabinets—hydraulic painting with Vinsynite, Vinyl Zinc and chlorinated rubber—protection against corrosion years ahead of any other—*forced* into every opening so that not the slightest corner goes unprotected.

Stainless Steel Fans and Shafts

Here's maximum protection against corrosion. Deep-pitch, 4-bladed fans for quiet operation are made of stainless steel. Shafts, too, are stainless steel for the absolute safety value in rust prevention.

20-Year Guarantee! on the wetted deck surface against rotting or fungus attack

Only Halstead & Mitchell pressure-creosotes all wood used in its cooling towers to provide the most satisfactory protection known against rotting, fungus attack and corrosives in cooling water. That's why you get the "20-Year Guarantee" *only* from Halstead & Mitchell.

And Everdur Bolts For Ease of Disassembly After Years of Operation!

AT LEADING WHOLESALERS EVERYWHERE • WRITE FOR CATALOG CT 584

HM
Halstead & Mitchell

BESSEMER BUILDING, PITTSBURGH 22, PA.

Water Treatment

3 Basic Principles Combined with Common Sense Can Increase Chances for Trouble-Free Operation

RICHMOND, Va. — "A large dose of common sense" is the first solution to problems of water scaling, according to Mearl A. Kise, director, Research and Development Div., Virginia Smelting Co.

"Be sure there is an adequate water flow to wet all the tubes of an evaporative condenser or fill a shell and tube," he cautioned the Richmond section, American Society of Refrigerating Engineers.

"Occasionally wetted, hot surfaces quickly become coated with scales by evaporation. Spray heads should be kept fully open so that no complete evaporation takes place on any tubes," he advised.

"Cooling water problems as they occur in air conditioning and refrigeration equipment are matters for serious thought, particularly since we are apt to encounter more of them in the future," Kise warned.

Reclaimed Water Being Used in Some Areas

"With the increasing consumption of water in the home, due to automatic washers and garbage disposal units, and the increased use of water in commercial refrigeration and air conditioning, the water shortages and costs in many places have become problems. So much so that in some areas reclaimed

water is being used.

"The Texas Co. refinery uses reclaimed water from the sewage plant of Amarillo, Texas in processing. The Bethlehem Steel Co. at Sparrows Point, Md. uses 50 to 100 million gallons a day of reclaimed water from the Baltimore sewage treatment works. In the next 20 years water consumption is expected to about double. We can expect more use of reclaimed water," he predicted.

"Who knows but that the day may come when all our water may be used on a recycle basis. Of course when a city is fortunate as is the city of Richmond, one merely by-passes a portion of the river in through the

water works and out through the sewage works.

Ordinances Require Water Economizers

"Because of growing water shortages, more cities are passing ordinances requiring water economizers or conservation devices on refrigeration and air conditioning equipment. Once-through cooling systems are gradually being outlawed as wasteful of water," Kise said.

"For example, last year the city of Denver put into effect an ordinance requiring that all refrigeration units of 2 tons capacity and more must have a conservation device whereby at least 90% of the water is reused and then again reused.

"Of course there is a very good engineering basis for using economizers. One gallon of water removes 50 to 100 times as much heat in evaporating as it would in merely being heated 10° F. or

so in a once-through system.

"As you know, evaporative cooling takes place in spray ponds, and cooling tower systems as well as in evaporative condensers. The fact that a pound of water absorbs about 1,000 B.t.u. on evaporating and only an average of 10 B.t.u. in being heated 10° F. is a potent argument in favor of evaporative cooling to get more effective use of water, not to mention lower costs.

Evaporation Is Not Unmixed Blessing

"Unfortunately, some of the problems encountered in once-through systems are multiplied about as much in evaporative units as in the cooling effectiveness. Evaporation is certainly not an unmixed blessing. The main reason is dissolved salts," Kise explained.

"All natural waters, excepting rain water, contain some dissolved mineral salts, as you know. These salts come from the seepage of the water that falls as rain and snow through limestone and other mineral beds. Carbon dioxide from the air and from decaying vegetable matter dissolved in the water attacks limestone, i.e., CaCO_3 , to form the much more soluble bicarbonate $\text{Ca}(\text{HCO}_3)_2$. Some silica, SiO_2 , in colloidal form, some sulfate as CaSO_4 or calcium sulfate, as well as iron salts, usually ferrous bicarbonate, often appear in water supplies.

"For example, Richmond water contains enough calcium and magnesium as bicarbonates and sulfates to have the equivalent of 75 p.p.m. of CaCO_3 in hardness. In other words, each 10 gals. of Richmond water, on evaporation, would leave about 2.8 grams of scale or deposit. That much solid in each 10 gals. of gasoline going into your car would make your hair stand on end. In Winchester, Va. where the hardness is almost 300 p.p.m., the deposit would be four times as great. Of course, fortunately not all the salts scale out on heat transfer surfaces for various reasons.

"A hardness of 75 p.p.m. means that potentially, in eight hours of operation (a normal working day), a 20-ton unit evaporating 1.7 gals. of water per hour per ton of refrigeration capacity would throw out over 2.7 ozs. of scale," pointed out Kise.

Lime Scale Cuts Down Heat Transfer

"And don't forget that a lime scale—a carbonate, sulfate, or silicate scale—cuts down on heat transfer as though it were a layer of insulation. A scale $\frac{1}{32}$ in. (0.0312 in.) in thickness on a 10-ft. section of cooling pipe would reduce the heat transfer enough to require 30 ft. to do the same job.

"The tendency to form scale is inherent in many waters used in cooling systems and unfortunately the tendency is aggravated by the evaporative recycle process.

"And now there are three basic principles or rules that, when used in a common sense fashion, can greatly enhance the chances for trouble-free operation of refrigeration and air conditioning equipment," Kise suggested.

(Concluded on Page 21)



Chicago serviceman makes more calls per day, fewer call-backs using Ansul Refrigeration Oil

John Bechtel has been able to increase his income because Ansul Oil has cut his call-backs. Now, he is able to call on more customers per day than ever before. This is possible because Ansul Oil is dry, wax-free, non-foaming and tops in the refrigeration industry for stability. According to John it's the one oil that works for him, not against him.

Because Ansul Oil is dry you can almost forget about trouble caused by acid formation and sludge deposits, provided of course that you keep the refrigerant dry. The Ansul T-FLO DRIER will take care of that job for you. The non-foaming feature of Ansul Oil prevents excessive carry-over from the compressor to the low side. Keeping the oil where it belongs reduces the danger of broken valves. Using an oil that is wax-free

can save you a lot of trouble. Wax can plug capillaries as well as cause sticking expansion valves. And because Ansul Oil is stable you can be sure of long lasting lubricity. Remember, too, that Ansul Oil is an all-purpose oil with special emphasis placed on its compatibility with the fluorinated refrigerants.

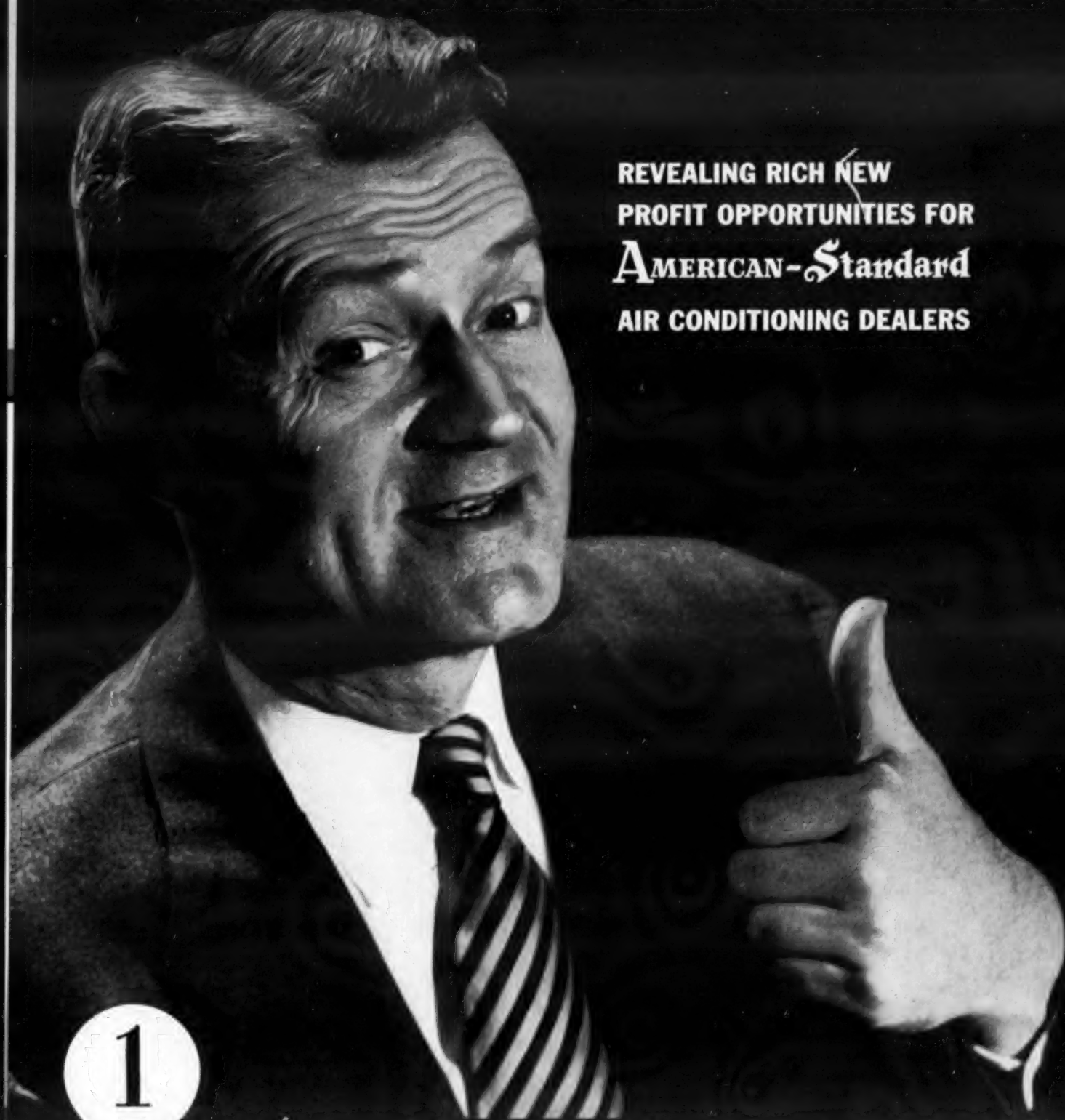
Ask your Ansul Wholesaler about the new DRY-EYE fitting. The window changes color to let you see if the system is wet or dry.

Specify Ansul Oil on your next order. It's the high quality oil that works for you, not against you. THE ANSUL CHEMICAL COMPANY, Marinette, Wisconsin.



5 pages of **AIR CONDITIONING** **HISTORY-IN-THE MAKING!**

REVEALING RICH NEW
PROFIT OPPORTUNITIES FOR
AMERICAN-Standard
AIR CONDITIONING DEALERS



1

THE GREATEST NAME IN HEATING BRINGS YOU
YOUR BEST DEAL IN COOLING, TOO!



AMERICAN-Standard

AIR CONDITIONING DIVISION

ELYRIA, OHIO

"How we Air Conditioned our
entire house..."



1. RECEPTION GUESTS...



2. YOU CAN ASK...

Here's how to
AIR CONDITION EVERY ROOM
without ripping your house apart



1. LOOK AT YOUR FURNACE. If it's a fairly modern forced air unit, all you need is an American Standard add-on air conditioner to enjoy cool comfort in every part of your house. Furnace unit. Replace with an American Standard over round model.



2. SEE YOUR... Standard... charge and... either way...



3. ONE "PACKAGE" IS ALL YOU NEED. American Standard air conditioners are factory assembled for easy installation next to your furnace or wherever you have a few square feet of space. Air-cooled type units no indoor space given outside the house.

Now the greatest name in HEATING
is your greatest buy in COOLING.

AMERICAN-Standard
AIR CONDITIONING DIVISION

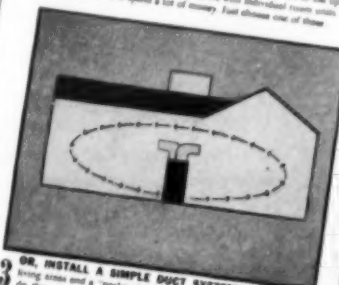
Use your Furnace to **COOL**
your Entire house!



1. IF YOUR HOUSE HAS HEATING DUCTS you already own a good part of a central air conditioning system. No need to use up floor space or disfigure your windows with individual room units. And no need to spend a lot of money. Just choose one of these:



2. COMPACT, ADD-ON COOLING UNITS engineered by American Standard for easy connection to furnace ductwork in basement, entry room, crawl space or attic. Design permits use of existing furnace blower for summer air distribution in every room.



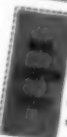
3. OR, INSTALL A SIMPLE DUCT SYSTEM to the main living area and a "package" model American Standard unit will do the rest. It cools, dehumidifies, filters, and circulates the air continuously. You feel your best and fully enjoy your home.



4. WATER SUPPLY? NO PROBLEM! This American Standard air-cooled model requires no water, uses only electricity and air. Installed outdoors, it saves indoor space, too. Even in hottest, muggiest weather it keeps your entire house refreshingly cool.

Now the greatest name in HEATING
is your greatest buy in COOLING.

AMERICAN-Standard
AIR CONDITIONING DIVISION



American Standard Air Conditioning Division
40 West 42nd Street, New York 18, N. Y.
☐ Please send American Standard True Round Air Conditioning literature and complete specification sheets on units available. Enclosed is 10¢ to cover cost of handling.
Name _____
Street _____
City _____ State _____

Full page, 4-color and black and white ads like these will reach millions of home owners this Spring through leading home magazines. Note the headline approach featuring easy, low cost add-on cooling... and the picture-caption technique which tells the complete air conditioning story in quick, non-technical language. The coupon is a standard element. Leads will be forwarded to American-Standard Air Conditioning dealers.

2

YOUR BEST DEAL ON...
NATIONAL ADVERTISING SUPPORT

AMERICAN-Standard AIR CONDITIONING DIVISION

ELYRIA, OHIO

**TOP QUALITY UNITS
FOR ALL
RESIDENTIAL AND
COMMERCIAL JOBS**

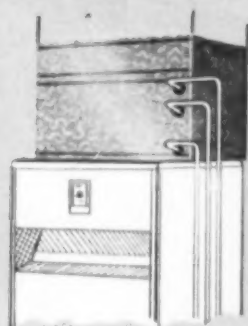
*See Your Local
Distributor for
Complete Details*



**OUTDOOR AIR-COOLED
CONDENSING UNIT**
2, 3 or 5 HP.



**PLUS YEAR 'ROUND
AIR CONDITIONER**
Gas or Oil Fired

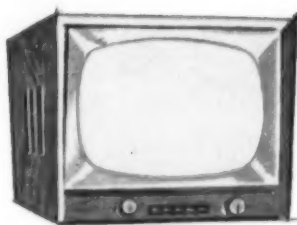


**OR VERTICAL AIR-FLOW
EVAPORATOR.**

WATERLESS AIR-COOLED UNITS...



NEWSPAPER AD MATS

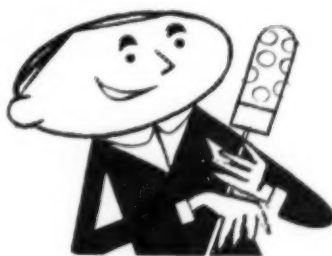


**1-MINUTE TV FILMED
COMMERCIALS**

*Liberal cooperative advertising plan
covering newspaper space . . . radio and TV time . . .
home show exhibit space*



**HOME AND BUILDING
SHOW EXHIBITS**



**1-MINUTE RADIO
COMMERCIALS**



ENVELOPE STUFFERS

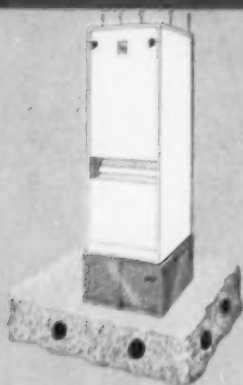


**YEAR 'ROUND AIR
CONDITIONING BOOKLETS**

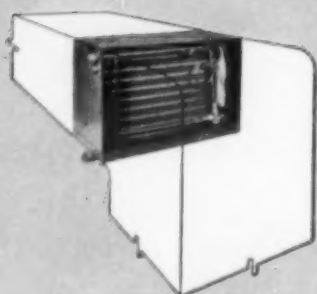
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**YOUR BEST DEAL FOR
COMPLETE-LINE SELLING**

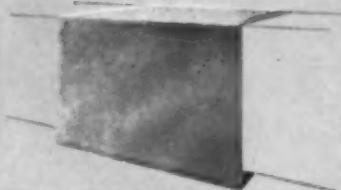
FAMOUS NAME AND FULL



OR COUNTERFLOW
EVAPORATOR



OR HORIZONTAL
EVAPORATOR



OR BLOWER-EQUIPPED
EVAPORATOR



**WATER-COOLED
RESIDENTIAL
ADD-ON UNITS**

FOR ALL TYPES OF INSTALLATIONS

WAT



**EASY-REFERENCE CATALOG SHEETS
AND PRODUCT SPECIFICATIONS**



**GIANT 22" BY 26" SELF-MAILER
OR WALL POSTER**



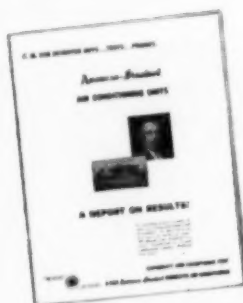
**8" and 12"
WINDOW DECALS**



**FO
34" WIND**



**AIR CONDITIONING FOLDER
—COMMERCIAL MODELS**

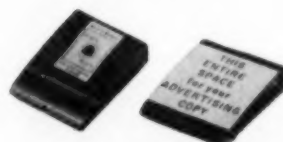


**TESTIMONIAL BOOKLET;
AN ENGINEER BUYS AND SCIENTIFICALLY
TESTS AMERICAN-STANDARD COOLING**

LITERATURE RACK



36" "INST"



**DEALER M
—IM**

4

**YOUR BEST DEAL ON
LOCAL ADVERTISING & PROMOTION**

L LINE

simplify your selling



**WATER-COOLED
RESIDENTIAL
PACKAGE UNITS**



**WATER-COOLED YEAR-
ROUND PACKAGE UNITS**
Gas or Oil Fired



**WATER-COOLED
HORIZONTAL
ADD-ON UNITS**



**WATER-COOLED
COMMERCIAL
PACKAGE UNITS**

WATER-COOLED UNITS... ALL MODELS... ALL SIZES



**FOUR-COLOR
WINDOW STREAMERS**



**"INSTALLED HERE"
SIGNS**

**DEALER MATCH BOOKS
-IMPRINTED**



**48" DOUBLE-FACED,
ILLUMINATED OUTDOOR SIGN**



37" ILLUMINATED WINDOW SIGN



**TELEPHONE DIRECTORY
TRADE MARK HEADINGS**



36" OUTDOOR METAL SIGN

5

**YOUR BEST DEAL ON
DEALER IDENTIFICATION**

INDUSTRY ON THE MOVE

The air conditioning industry is on the move in 1956. Men who sell, install, and service air conditioning equipment are eagerly looking for more information on products, markets, and methods.

So the role of advertising becomes increasingly important to you.

The foregoing insert by the Air Conditioning Division of American Radiator and Standard Sanitary Corp. is a fine example of trade advertising at work.

The publishers are extremely pleased that AIR CONDITIONING & REFRIGERATION NEWS was selected as a medium to bring this message to its more than 20,000 subscribers.

Water Treatment Principles -- Frigikar Names Lind to New Truck, Bus, Transport Refrigeration Div.

(Concluded from Page 14)

Blowdown or Bleed Absolutely Essential

"First: A blowdown or bleed from circulating water system is absolutely essential. Salts will not disappear into thin air. Unless there is a bleed, the salts must ultimately scale out and sludge out, even some of the more soluble ones.

Adding Scale Inhibitor In Connection with Bleed

"Second: In many cases scaling can be retarded or completely inhibited if, in connection with a bleed, a scale inhibitor or retarder is used. For example, here are two glass coils through which hard water has been passed in the same manner in both cases, excepting that the water through this coil was treated with 2 to 4 p.p.m. of a slowly soluble polyphosphate.

Using Acid Cleaning Agents

"Third: Even with bleeds and scale inhibitors, scales sometimes form. For many small units daily and weekly and even monthly servicing is out of the question. Where proper blowdown or inhibition practices are followed scaling may still develop over a period of a year or in several years.

"The most economical and simple maintenance procedure is to remove such accumulations with properly formulated acid cleaning agents. There are available both solids and liquids which are formulated with blended inhibitors to greatly reduce metal attack.

"For example, here is a sample of scaled tubing from a unit in Illinois in a small town 40 miles southwest of Chicago. This unit was run on well water of probably 400 p.p.m. hardness typical of the area. In a short time the 3/8-in. inside diameter was reduced to 1/8 in. with scale and periodically the tubing had to be replaced.

"Note that the metal of the tube is not attacked, but the rapid evolution of carbon dioxide shows that the lime deposit is being destroyed. In the case of sulfate scales, usually mixed with some carbonate, the attack is less dramatic than with a scale composed essentially of carbonate, but the scale is disintegrated and can be removed. If the scale is heavy in silicate, a caustic treatment first followed by an acid scale remover will do the job," Kise pointed out.

Scale Problem Is Serious Only When Ignored

"Actually, the scale problem becomes a serious matter only if ignored. A systematic maintenance program carried out by servicemen and maintenance engineers should prevent any serious trouble due to scale, algae, and corrosion.

"We believe that by removing the humbug and the implied magic from the field of water treatment as far as air conditioning and refrigeration equipment is concerned and by supplying sound information and products, 90% to 95% of the problems can be handled.

"The fundamentals of scale

control are simple enough that servicemen who handle far more complicated problems in refrigeration can readily diagnose and remedy the common cooling water problems of the small units that don't justify the attention of a water specialist or constant supervision," Kise emphasized.

Beware of Cure Alls They Can't Replace Maintenance

"Beware of gadgets and cure alls! One pill cannot make 25 lbs. of scale disappear. This requires nearly 50 lbs. of a solid acid cleaner or 9 gals. of a good liquid cleanser. No maintenance compound can reduce or retard scale formation without a blowdown on the system. Nothing can take the place of a good maintenance program," he said. maintenance program," he emphasized.

DALLAS—William E. "Bill" Lind's appointment as manager of the newly-formed truck, bus, and transportation refrigeration division of Frigikar Corp. here has been announced by Bert J. Mitchell, Frigikar's president.

Lind was formerly vice president and general manager of ARA Automotive Air Conditioning Co. of Fort Worth.

Earlier, he was with The Guiberson Corp., as engineering assistant to the executive vice president; and before that a member of the engineering and development staff of The Menasco Mfg. Co., aircraft component manufacturer.

Lind is an active member of the Refrigeration Service Engineers Society and American Society of Refrigerating Engineers.

POSITIONS OPEN

Residential Air Conditioning Sales Executive with National Experience in Central Systems.

Contact JOHN R. LONERGAN
General Sales Manager

Senior Development Engineer with Residential Air Conditioner experience.

Contact A. E. KLINE
Vice President, Engineering

Unlimited Growth Opportunity, Profit Sharing Vacationland Location.

McGraw Electric Company
LONERGAN MANUFACTURING DIVISION
ALBION, MICHIGAN

WAGNER ELECTRIC MOTORS... THE CHOICE OF LEADERS IN INDUSTRY



choose these
smaller,
lighter,
motors...
for
modern
equipment

Type RK, Integral sizes through 5 hp.

For years Wagner motors have been the first choice of many leading manufacturers of air conditioners, refrigerators, freezers, water pumps and motor-driven tools. They meet the requirements of many other similar applications because of their high starting torque and low starting current.

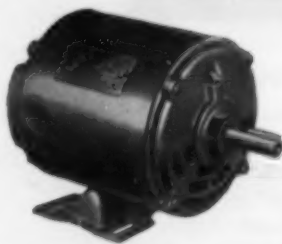
Now these Wagner motors are lighter in weight and smaller in size. This means that you can design smaller motor housings—build lighter motor mountings. Wagner motors are easier to handle and easier

to stock because they take up less space.

And these motors offer low maintenance costs—only a minimum of servicing is required—they give many years of reliable service with unusual freedom from vibration and noise.

Available in repulsion-start or capacitor-start types—open or totally-enclosed—sleeve or ball bearing—with rigid or resilient bases or machined endplates for flange mounting. Write today for Bulletin MU-185 which gives complete information.

A Complete Line—Single-phase and Polyphase Motors



Type RP, Polyphase fractional horsepower motors. Available in 1/4, 1/2, 3/4, 1, 1 1/2, and 2 hp ratings. Rigid or resilient base—sleeve or ball bearing.



Type RA, Repulsion-start induction-run single-phase motors. For applications requiring high starting torque. 1/2 to 15 hp.



Type RK Capacitor-start. 1/2, 3/4, and 1 hp... sleeve or ball bearings. The resilient mounting offers unusual freedom from vibration and noise.



Wagner Electric Corporation
6441 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC

For more information about products advertised on this page use Information Center, page 36.

'Short, Short' Course In Air Conditioning Fundamentals-5

Discussion of Sound Control and Comfort Zone Ends Schaffer Course

"Another important factor in air conditioning which affects the human health and comfort is sound or noise.

"Sound may be defined as a wave motion or vibration of air which strikes the ear drum and is carried to the brain by nerves. Sound waves are similar to the waves caused by a pebble or stone dropped into a pond of still water. The waves travel in all directions.

"Just as the weight of the pebble will determine the number of waves and their size, so will the kind of noise determine the number of waves and their size.

"The number of waves produced within a given length of time is called the frequency and is stated in cycles per second. The average human ear is most sensitive to sounds ranging from 100 to 5,000 cycles per second.

"In general, machinery in operation has a frequency of approximately 100 c.p.s. while fan frequencies will approximately correspond to the revolutions per second times the number of blades. Air noise in ducts will vary from 1,000 to 2,000 cycles per second.

Intensity More Important Than Frequency

"In air conditioning work the intensity of sound is of more importance than frequency.

"Sound is a form of energy and, therefore, cannot be increased or lessened without an increase or decrease of energy. It may be concentrated or forced like light or heat so that a straight beam is produced with

a nearly constant intensity for a great distance.

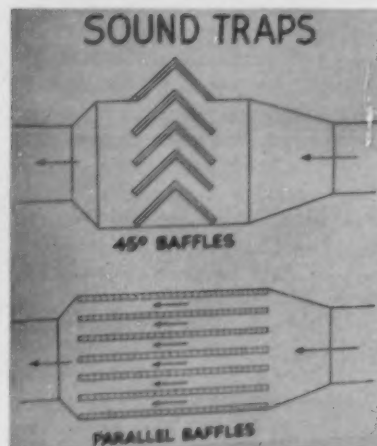
"Sound, like light and heat will be absorbed or reflected by an obstacle in its path. Walls will both absorb and reflect sound. Even though a wall may appear to be quite rigid it may be capable of vibrating in the frequency necessary to retransmit the sound wave it receives.

"From this we can see that sound is transmitted to the conditioned space in two ways; through the building and through openings and ducts. Machinery in one location in a building may make no noticeable noise, but its vibration will be transmitted to ductwork, wall, floors, or ceilings. This sets up a vibration of the same or higher frequency in the structure which may be quite annoying.

Decibel Is Unit Of Sound Measure

"The unit of measure of sound is the decibel. The decibel is the smallest difference in sound level detectable by the human ear. Just to give you a comparison of the different intensities encountered during an average day we find tabulations which show that the sound in an average home is 38 decibels, in stores and restaurants 55 to 70 decibels, offices 60 to 80, average factories 75, and exterior noises vary from 65 to 92 decibels.

"I cannot overemphasize the important role that sound plays in comfort air conditioning work. The manufacturer of the equipment, the sales engineer, and we as servicemen must con-



sider the effects of sound or noises that would be a source of annoyance to the occupants of the space.

"The importance of sound control must be realized at the start of every application. Consideration must be given to the sources of noise and the problem approached accordingly.

"The sources of noise in air conditioning work are the refrigeration load, air quantities, condensing unit, conditioning unit, and ducts.

"The reduction of heat from the space to be conditioned by means of insulation, awnings, removal of sun effect load, change of inside design conditions, hooding and ventilating coffee urns, steam tables, etc., reduces the size of equipment required.

"Since sound is generated by the moving parts of the equipment the smaller the equipment, the less sound potential.

"The movement of air both

D. C. Schaffer, training supervisor for the service department at Frigidaire Div., General Motors Corp., presented an excellent outline of the basic fundamentals of comfort air conditioning at the national convention of the Refrigeration Service Engineers Society last November. He explained for the benefit of servicemen and others who are not engineers just what air conditioning is all about and how it works.

This is the last instalment of a condensed version of his outline which has been presented serially by the NEWS. In earlier instalments Schaffer told about the nature of air and moisture, explained the psychrometric chart and how to use it, described air movement and the various types of fans, outlined air flow factors in designing duct systems, described grilles, outlets, dampers, and tools for checking distribution, and explained ventilation and filtration. This instalment discusses sound, control, and comfort conditions.

generates and carries sound. By reducing the volume handled, less energy is expended which results in a decrease of noise hazard. This can be accomplished by first reducing the load and using the highest allowable diffusion temperature difference.

"The condensing unit is always a potential source of noise. It may be located in a machinery room which may or may not be isolated from the remainder of the building.

"The noise may be transmitted to the conditioned space through walls and ductwork. Noise from this source can be controlled by mounting the compressor on cork or rubber, using flexible connections in the refrigerant and water lines, or treating the surrounding walls with sound absorbing materials.

Majority of Noise Originates from Fan

"The conditioning unit which includes the fan, filters, ductwork, and grilles is of prime importance from the standpoint of noise. Of these, the fan is perhaps the most important since a majority of noise originates at this point.

"The noise level of fans is predicated upon the resistance pressure against which they operate, the velocity of the air, and the speed of the fan. Of course, the size of the fan must be considered since the noise increases gradually as the fan size increases, up to 36 in.

"Whenever noise is a factor, the resistance pressure should be less than 2 in. water, with 1 in. or lower the most desirable for especially quiet operation. When it is necessary to have high resistance pressure and volume, two or more fans are used so that each fan is working on a portion of the resistance and lower fan speed can be used.

"The grilles are another common source of noise and one hard to control. Grille noise is caused by the turbulence set up due to the grille structure. Different grilles will have different noise levels at the same velocity, and the same grille will have different noise levels at different velocities.

"One way to keep grille noise at a minimum is to make certain that the air enters perpendicular to the face of the grille. A sufficient number of grilles will tend to keep the noise at a lower level by permitting shorter throws at lower grille velocities.

"Where it is physically impossible to reduce the throw and velocity, the sound absorbing characteristics of the room can sometimes be improved in order to absorb the noise before it reaches the occupants.

Proper Design Of Ductwork

"The proper consideration in the original design of ductwork reduces the possibility of noise production. Since one of the main sources of noise in ducts is air turbulence, all precautions should be taken to avoid it.

"Some of the causes of turbulence are elbows, sudden transitions in duct sizes, branch ducts, and duct outlets. Where turbulence cannot be avoided, the surfaces causing the turbulence should be coated with sound absorbing material.

"Noise may be the result of poorly constructed ducts. When air flows through a duct, pulsations are set up which may produce a vibration which may cause one portion of the metal to strike another. For this reason, the edges of dampers that come in contact with parts of the duct should be edged with felt.

"The use of sound absorbing material within the ducts is essential in many instances (Concluded on next page)

New compactness in air-cooled AIR CONDITIONER design!

Smallest air-cooled, self-contained (not remote) 5-ton central type unit made.

5 natural wood-grain finishes available on all free-standing models.

Completely automatic, thermostat controlled, air-cooled condenser.

MODEL RO-525A
(with air distribution head)

MODEL RO-525A
(without air distribution head)

MODEL NO.	NOMINAL CAPACITY	TOTAL COOL. B.T.U.	COOLING C.F.M.	OUTSIDE DIM.
FL-2	2 Ton	24,000	900 @ .3 S.P.	30Wx21Dx43H
RO-26	2 Ton	24,000	1000 @ .3 S.P.	30Wx21Dx34H
RO-31	3 Ton	36,000	1200 @ .2 S.P.	30Wx23Dx38H
RO-31 H P	3 Ton	37,700	1400 @ .3 S.P.	30Wx25Dx40H
RO-525 A	5 Ton	63,500	1800-2400 @ .3 S.P.	40Wx26Dx57H

Thermostat has 3 positions: Continuous - Automatic, Fan & Compressor - OFF.

Complete air conditioning for entire home—or equivalent commercial or office area—at the lowest cost in smallest space!
GENERAL AIR CONDITIONERS deliver 2, 3 or 5 tons of cooling. All models operate on standard outlet (220 V, single and 3 phase except 2-ton—single phase only).

Attic, roof, outside, or free-standing units

NATIONWIDE SALES AND SERVICE

Offices and warehouses:
LOS ANGELES • ATLANTA
BOSTON • CHICAGO
CLEVELAND • HOUSTON
KANSAS CITY • MIAMI
NASHVILLE • NEW YORK
PHILADELPHIA
SAN FRANCISCO • SEATTLE
ST. LOUIS • TAMPA

WRITE today for details. Franchise dealerships available.

Main Office

GENERAL AIR CONDITIONING CORP.

Dept. N-26 • 4542 E. Dunham St.
Los Angeles 23, California

FIVE YEAR GUARANTEE—easy payment plan

For more information about products advertised on this page use Information Center, page 36.

Sound, Comfort--

(Concluded from preceding page) where noise is a factor. The percentage of the duct to be lined depends upon type of application and the length of ducts.

"Where extremely low noise levels are required, the entire length of the duct should be lined. In residential work, if high velocity ducts are used, approximately one half the duct should be lined.

"In better commercial applications usually about 20 ft. of the duct should be lined. In any event, sound treatment is most effective if located close to the source of sound.

Use of Sound Traps

"There are many instances where there is not enough duct for adequate treatment or complete duct treatment would be too expensive, in which case we would use a sound trap. There are two types of traps, the 45° angle baffle and the parallel baffle type.

"The 45° baffle is the most effective. It consists of sound absorbing material mounted in the duct. This design provides the same free area for the flow of air as that in the main duct.

"Where ducts pass through rooms in which considerable noise or heat prevails, it may be necessary to insulate the duct on the outside with a sound absorbing material such as rock wool blankets.

3 Classifications Of Insulation

"There are many types of insulation, but they fall into three general classifications. They are loose or granulated, flexible or blanket type, and solid or rigid type. The loose insulation is usually bonded with mastic material and is then applied to the duct.

"Flexible or blanket type materials adapt themselves to insulating elbows and odd shaped areas. It is usually cemented to the duct. When used inside the duct it produces a resistance of approximately 20% over that of sheet metal.

"However, to overcome this resistance, the material may be covered with 'Kribble' cloth or 'Sanacoustic' metal.

"Solid or rigid types of absorption material are generally self-supporting and can be affixed to the ducts by screws. They offer approximately 10% more resistance to flow than the sheet metal.

"To find the most desirable combination of temperature, humidity, and air movement for comfort and health, a series of experiments were conducted by the A.S.H.V.E. laboratories, with people. It was found that a number of different combinations of these three factors gave the same sensation of warmth.

"This sensation of warmth was called 'effective temperature.' Effective temperature is not a temperature in the true sense of the word. It may be roughly estimated at half way between the dry and wet-bulb temperatures.

"In the tests conducted, it was observed that a high humidity at a low temperature gave the same sensation of warmth as low humidity gave at a high temperature.

"The air motion in these tests was between 15-25 f.p.m., which

was the minimum it was possible to obtain with natural convection produced due to the pressure and temperature difference between the outside and inside of the test room.

"It was also determined that air velocity had a definite effect upon the effective temperature. As previously mentioned air velocities exceeding 50 f.p.m. in the summertime and 40 f.p.m. in the winter will produce drafts and discomfort.

Comfort Chart

"The tests enabled the laboratory to develop a chart, known as the Comfort Chart. The comfort chart illustrates the comfort zone which is the range of effective temperature in which more than 50% of the people feel comfortable.

"It was found that the expression of comfort and warmth from the same subjects were not identical in the summer and winter, therefore, two separate

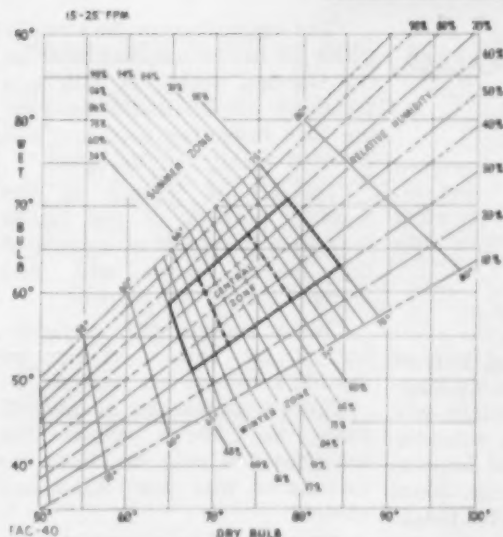
zones of comfort were indicated.

"The zone established with outside summer conditions prevailing is called the summer comfort zone while the zone determined with outside winter conditions is known as the winter comfort zone.

"The winter comfort zone is somewhat lower in its effective temperature range than the summer comfort zone. The winter zone extends from 65° E.T. to 73° E.T. while the summer zone extends from 65° to 78° E.T.

"Since very few persons were comfortable at the extremes of these zones it was decided to establish average comfort zones which would include 50% or more of the subjects. The average summer zone is from 66° to 75° E.T. and the average winter zone is from 63° to 71° E.T.

"The central zone includes the area between 66° and 71° E.T. The 66° E.T. line is called the



COMFORT CHART, developed by the ASHRAE, shows by heavy lines the range of effective temperature in which more than 50% of the people feel comfortable. The central zone, marked by dotted lines, indicates the limits of comfort for both summer and winter.

winter comfort line and is the E.T. at which 97% of the subjects expressed comfort and warmth. The 71° E.T. line is called the summer comfort line and is the E.T. at which 87% of the subjects were comfortable.

"The relative humidity was varied between 30 and 70% and this range seemed to cover the extreme comfort zone. However, the majority were comfortable between 30 and 60% relative humidity."

(The End)

General Chemical Presents

MOISTURE

Dramatized Story of the Cause and Cure of REFRIGERATION'S No. 1 SERVICE PROBLEM

For You to See and Show
Educational, Entertaining
SOUND-SLIDE FILM
IN FULL NATURAL COLOR

Prepared under the technical direction of DR. WALTER O. WALKER, "Genetron" Consultant and Dean, Division of Research and Industry, University of Miami.

A Full Report Highlighting

- Sources of moisture in refrigeration systems.
- Problems and damage caused by moisture.
- Recommended methods for removing moisture.

Here's information of real practical value to the air conditioning and refrigeration service engineer... a sound-slide film prepared by General Chemical to help you handle the problem of moisture in refrigeration systems.

"Moisture" is a swift-paced, 35-minute sound-slide film in full natural color. It is instructive, informative... gives authoritative, up-to-the-minute information on every phase of the costly moisture problem.

Full of "how-to-do-it" topics! Covered are: how moisture gets into the refrigeration system and how to keep it out; the problem of "freeze-ups" and its solution; the causes of corrosion; how moisture reacts to form destructive acids and sludges; how insulation breakdown and motor burnouts are related to moisture; sound practices for care in the field; how to purge moisture from the

refrigeration system; how to dry out a system with or without an oven; facts about desiccants, etc.

Refrigeration Service Engineers Society Members are invited to show this film at their chapter meetings.

Refrigeration and air conditioning wholesalers, equipment manufacturers, and contractors are invited to make

full use of it in briefing their organizations on moisture control, and to show it at meetings for customers. Also available to technical schools and colleges offering refrigeration courses.

FREE! Send coupon for loan of full-color print and record. Free prints also available on long term or permanent basis; write for particulars.

"Genetron" Department
GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

Without cost or obligation, I would like to have a print and record of "Moisture" on loan for showing (state preferred dates)

☐ If you do not have a sound-slide projector, check here and a General Chemical representative will arrange a showing for you.

Name _____

Position _____

Company _____

Where film will be shown (chapter meeting, staff meeting, etc.) _____

Street _____

City _____ Zone _____ State _____

AR-4

Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)
provided names of historical figures pictured on these Big Ones.

Marble Skid Row

Justifiably the city of Detroit is proud of progress on its long-needed Civic Center—which will include, incidentally, a substantial Exhibition Hall and impressive Auditorium (George Jones and George Mills of ARI please note).

An amusing footnote, however, has been supplied by a *Detroit Times* editorialist. Quote:

"We'll probably be proud of the marble amphitheater proposed for the riverfront Civic Center, but at the moment we have some misgivings.

"The amphitheater isn't really going to be an amphitheater in the Grecian sense. It will be a series of marble seats descending to a reflecting pool and will be used solely for lounging.

"Instead of gazing at the masked players of the Greek tragedies the 2,500 occupants of the marble seats will just lounge, gazing at the pool.

"We'll lounge with anybody, but if we had a choice we wouldn't lounge on marble.

There's where our misgivings come in. We're afraid the loungers will only be those unfortunates who don't have any choice.

"We think our amphitheater might be the only marble skid row in America."

Oh, No!

Two minor recessions in the next 10 years are predicted by the Research Institute of America, which also forecasts:

—Unemployment probably will increase by at least one million in the next three years as a result of unabsorbed additions to the work force.

—Prices will rise at least 10 to 16% in the next 10 years.

—The industrial map of the U. S. will change more drastically between '55 and '65 than in any previous period.

On the basis of an extensive and continuing study of business conditions and prospects, the Research Institute concludes that consumer spending will increase rapidly in the next 10 years—but not rapidly enough to bring about the growth projected in reports by the Congressional Staff.

The institute quarrels with some of the assumptions underlying the congressional report's anticipation of a 47% increase in gross national output. That will depend upon skyrocketing consumer spending and a dip in

savings. Actually, rising incomes may well bring a rise in savings, according to the institute's economic analysis. Also questioned was the assumption that the Government can spend a great deal more than it is spending now, and still lower taxes.

Citing weaknesses in a few key business areas, the institute reported that the first of the minor recessions is likely to come within the next two years, when the present optimism runs into some hard economic facts. Among them: Odds are that housing construction (estimated at 1.3 million units this year) will do well to average more than 1 million units a year for the next several years.

Business will play a major role in how fast consumer spending rises. Industry faces a tremendous challenge in the next decade in developing new products and new selling techniques that will win more of the

consumers' dollars.

Population increases, a major factor in expanding the market, will have a greater impact after 1960 when the post-war baby crop starts to come of age. Current population gains are greater for the young and the old than for the medium age groups which spend the most.

Here are additional forecasts for business:

—Supermarkets will dominate in the expansion of retail trade and move much further into non-food lines.

—Atomic energy development will create large export markets for nuclear power plants, instruments, research reactors, and for parts and components.

—Although fully automatic factories are not around the corner, "islands of automation" will be commonplace in a wide variety of industries.

Down-swings of the economy are likely to be relatively few, quite short-lived but always in an inflationary direction.

For Looks • Long Life • Low Installation Cost

CHOOSE THE
LARKIN
(YEAR 'ROUND)
AIR CONDITIONER

5 MODELS—2 TO 10 TONS



Ideal for:

STORES BARS
SHOPS GRILLS
OFFICES RESTAURANTS
BAKERIES FLORISTS
CLINICS

Cools or heats • De-humidifies
Filters • Circulates Air

Here is Larkin's answer to the ever-increasing demand for year-round comfort conditioners. When you see it . . . when you compare it . . . when you price it . . . then you will understand why we say it is another triumph for Larkin—manufacturer of air-conditioning equipment for nearly 25 years.

See your wholesaler today for complete information about the all-new Larkin Comfort Conditioner. Write us for the name of the one nearest you—or for descriptive literature.



"Originators of the Cross Fin Coil"

LARKIN COILS INC.

519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

FEATURES THAT SELL AND SATISFY

- Larkin air-conditioning coil—eight fins per inch, continuous fin, staggered tubes, for highest efficiency and lowest operating cost
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- Fiber-glass insulation
- Pressure-type, centrifugal, dynamically balanced, forward curved fan wheels
- Frictionless, self-aligning bearings completely encased in Neoprene
- Resilient base motors on adjustable mounts
- Two-direction, adjustable discharge grille
- Easily removed, throw-away filters
- Heating coils for use with steam or hot water
- Slotted hanger bars
- Easily installed, easy to service
- Backed by the engineering skill and manufacturing reputation of Larkin Coils—one of America's leading makers of commercial and industrial refrigeration and air-conditioning equipment

Lagniappe

If automation is to pay off, supersalesmen must be trained. Sales strength must be geared to automation's strength of production. Double production and you have to find twice as many buyers; that means twice the sales effort.—*Printers Ink.*

Out of Our Mailbag

Compania Argentina Industrial
General Electric
Buenos Aires
Republica Argentina

Mr. Inside Dope:

I noted with interest the tabulation of "Complete Electric Household Refrigerators."

However, I believe the totals under "Other Foreign" do not give an accurate picture of the activity in this field outside the United States and Canada. For example we estimate the actual production in Argentina at between 100,000 and 150,000 yearly. Yet you only list 143,000 for the whole world in the first half of 1955.

It would be interesting if your readers could realize how closely the American refrigerator industry is watched and copied by their foreign brothers. You set the standard that the world is following.

K. M. PRESTRUD,
Supervisor Product Engineering

Refrigeration Supply Co., Inc.
Fargo, North Dakota

Editor:

The following maybe you could put in print under your Inside Dope:

"On the walls of an ancient temple was found this picture:

"A King forging from his crown a chain, and nearby a slave converting his chain into a crown. Underneath was written:

"Life is what one makes of it, no matter of what it is made."
L. M. DALY

Last Laughs

After marrying, some gals discover they are whistled for, instead of at.—Mrs. H. J. NEWELL.

Not what we have, but what we enjoy, constitutes our abundance.—JEAN PETIT.

Building, Construction Group Name Lawton To Joint Dispute Board

NEW YORK CITY—Frank C. Lawton, Paterson, N. J. mechanical contractor, has been appointed a board member on the National Joint Board for Settlement of Jurisdictional Disputes in the building and construction industry, it was announced here.

A partner in the mechanical contracting firm of Lawton & Kelly, Paterson, he will represent the Heating, Piping & Air Conditioning Contractors National Association (The Mechanical Contractors Association of America) and the National Association of Plumbing Contractors as one of the members of the nine-man board.

The board was organized in 1948 to help settle jurisdictional disputes among the 19 building trade unions. The NJB is headed by Harvard professor John T. Dunlop.

The Heating, Piping & Air Conditioning Contractors National Association is a national body of some 1,200 mechanical contractors representing 41 local associations throughout the country. The Mechanical Contractors Association of New Jersey is one of these.

During 1955 the NJB at its 43 meetings took a total of 569 actions involving trade unions in the building field aimed at eliminating work stoppages, strikes, and other intra-union disputes.

Among the unions involved in these actions were carpenters, sheetmetal workers, plumbers, pipe fitters, roofers, bricklayers, iron workers, lathers, boilermakers, painters, engineers, and elevator operators. The NJB meets once a week in Washington, D. C.

Wichita ASRE Being Formed, To Meet Apr. 10

WICHITA, Kan. — Members and potential members of the American Society of Refrigerating Engineers in this area will meet in the Colonial Room of the Hotel Lassen on Tuesday, April 10, for the purpose of organizing a Wichita Section of the ASRE.

Engineers, architects, students, builders, distributors, and dealers who are interested in air conditioning and refrigeration and would like to become members of the ASRE are invited to attend the meeting and add their names to a "petition for charter" to be submitted to the national headquarters of the society.

C. W. Nessel, industry consultant for Minneapolis-Honeywell Regulator Co., will speak to the group at 8 p.m. on the subject, "Practical Aspects of Residential Air Conditioning." His talk will be preceded by a social meeting at 6 p.m. and dinner at 7 p.m.

The task of organizing a Wichita Section has been undertaken by a steering committee under the chairmanship of Dan J. Mull, engineering vice president for the O. A. Sutton Corp. John Lear of the Coleman Co. is vice chairman and Bill Rundell, also of Coleman, is secretary.

Cooling Waste Water Law Sought In Lakeland

LAKELAND, Fla. — According to City Manager David Payne, a city ordinance prohibiting flow of waste water from large air conditioners into sanitary sewers will be prepared for passage.

A committee including Payne was appointed last summer to study overloading sanitary lines after Charles Larsen, light and

water superintendent, warned of serious taxing of sewers by disposal from air conditioners.

Payne said the proposed ordinance, to be submitted first for review by electrical and plumbing contractors, will apply to units of 5 tons or larger.

Those with such coolers will be required, under the proposal, to make use of water-saving devices, to substitute a waterless unit, connect to storm instead of sanitary lines, or use a disposal well.

Penn. Salt Building for Refrigeration Production

PHILADELPHIA — Pennsylvania Salt Mfg. Co. filed a registration statement with the Securities and Exchange Commission covering the proposed offering of a new issue of \$15 million sinking fund debentures due April 1, 1981, it was announced by the company here recently.

Net proceeds from the debenture

sale will be added to general funds to be used for an expansion, development, and improvement program costing approximately \$55 million over the next five years, Pennsalt declared.

Already under construction is a multi-million dollar unit at Calvert City, Ky., for production of "Isotron" aerosol propellants and refrigerants, and facilities at Wyandotte, Mich. for production of high-test calcium hypochlorite.

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OF LIQUID LEVEL AND
DIFFERENTIAL-USE

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Just set the dials for accurate control
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all non-corrosive liquids with specific
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**OFF THE CHEST**

Dill & Norris Sheet Metal & Heating Co.
Columbus, Miss.

Editor:

Before our Room Air Conditioner Industry falls into disgrace beyond any possible chance of salvage, is there something the NEWS can do to beg or demand of the Industry, that we have an "A.G.A." or similar type Certified rating and other standards.

If nothing else we need another good expose article similar to George Taubeneck's (March 21, 1955) "We Can't Build a Good Business on Dishonesty."

The serious and alarming sales problems we encounter are, we think, unique to our Industry for the following reasons:

(1) Buyers of air conditioners are easily "bamboozled" and fooled because most have never bought one before, nor have they ever bought any product similar to the conditioner, on which they could have "learned their lesson."

(2) The tremendous amount of cut rate price advertising and wild claims of performance and quality is too expensive to overcome by normal sales efforts by quality brand sellers.

(3) The public has been lead to believe that air conditioning will become immensely cheaper in price as time goes on, far beyond the amount of true price reduction due through mass production. There is harmful carryover from this to other products and they think by waiting many items will come down in price. This is in face of known, ever increasing costs of material and labor.

(4) The cut rate quality of air conditioners involves many Brands — which have gained great respect with the buying public.

We have already started this season with 1956 Model 1-hp. units advertised at \$179.95 to

\$239.95. There must be something wrong somewhere in view of this fact below:

We paid \$183.00 F.O.B. Factory for the last 1-hp. refrigeration condensing unit with five-year warranty we purchased for sale in connection with our commercial refrigeration business, and direct from our Refrigerator manufacturer.

In view of the long years of mass production behind the condensing unit manufacturing it is difficult to reconcile a 1-hp. air conditioner with all the components necessary, sold to the retailer consumer for less than we can buy a 1-hp. condensing unit alone.

We think it should be at least helpful to direct another article to the Industry such as the one by Mr. Taubeneck in 1955.

Further, we believe that if the NEWS would solicit and publish "tell-tale" specifications such as coil and condenser face area, depth, and total surface, construction details, air quantities, etc., it would be of great value. Also, the lack of information submitted should be condemned.

We believe it will be quite revealing to anyone who has not done so already, to pull off the covers of a lot of the so called 1-hp. or ¾-hp., etc., units and inspect and see what is being sold to the public.

We feel that this situation as it exists today is nothing but futile, as the manufacturers with good intentions can only exist if they stoop to the same level and cheapen their units and fool the public.

By the same token, the legitimate dealers can only exist by either getting out, or by stooping to handle the cheapened units.

We certainly appreciate your efforts in the past and hope that you can help us help ourselves out of this situation.

CAMDEN NORRIS

**They'll
Do It
Every
Time**

by

Jimmy
Hatlo**What Do Women
Want, Anyway?**

Best housewives are neat and tidy. Hence, they want clean lines in their home machines, and they want them trouble-free.

Most women like gadgets, too. But, the girls plead: keep them practical, easy to clean, and economical to replace.

The 19½ million women who work outside the home (10 million of these are married women) are busy gals. They have to do their "homework" at odd hours.

Here are some comments about refrigerator design from various home economists:

"Something should be done about shelf appearance. Shelves are too hard to clean.

"High humidity compartments are not really high enough in humidity. Food still has to be covered.

"Construction seems to be slipping. screws keep coming loose in the evaporator.

"Don't carry the 'food filing' idea too far. Housewives vary considerably in their purchases of food and where they want to

place the food in the refrigerator."

From an over-all viewpoint, these ills aren't serious, but each one represents a dissatisfied customer.

Women are interested in more freezer space, BUT: If the temperature isn't low enough to hold frozen foods for at least two weeks, homemakers are unhappy.

Freezer section is placed at the bottom of the refrigerator by some manufacturers on the theory that women don't use that section so often. However, it's no fun squatting or kneeling for five or 10 minutes while looking for, or storing frozen foods.

Housewives apparently aren't bothered by most noises that occur in the average home. Nevertheless they are sensitive to the clackiness of a refrigerator, freezer, or room air conditioner.

It's the "little things" that impress a woman, we hear. Refrigerator, freezer, and room-cooling designers please note.

The Mountain Comes To Mahomet

Glory be! This is wonderful. Unionists in Kansas City, Mo. are going to college to study loafing—and ways to prevent it.

Offered by the University of Kansas City, this course-of-study is the brain-child of Local 124, International Brotherhood of Electrical Workers. Its president, Andrew Harvey, explains that productivity in the construction industry is low.

"Some projects," he dares to say, "are more like a convalescent home than a construction job."

He adds that if a "worker dogs it, doesn't give a full days work for a day's pay, he is multiplying the costs.

"Some foremen are fearful of offending workers by reprimanding them for loafing, but workers cannot expect to maintain a \$3.20 hourly scale without giving good work for it."

That Kansas City University 10-week course tackles, among other things, foremen's problems in getting top performance out of their crews.

So far several dozen union members have enrolled. Students include foremen and apprentices and journeymen. The local pays their tuition.

All praise to Andrew Harvey of Kansas City. He deserves a monument already.

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Directors Approve Sale of Presstite To American-Marietta

ST. LOUIS — Directors of American-Marietta Co. and The Presstite Engineering Co. of St. Louis have approved an agreement providing for the sale of the entire assets and business of Presstite to American-Marietta.

The proposed transaction involves the issuance of 90,000 common shares of American-Marietta, having a current market value of approximately \$4.5 million.

Presstite Engineering manufactures more than 400 specialized types of sealing, insulation, and adhesive products used principally in the refrigeration, air conditioning, aircraft, and automotive industries.

William C. Ferguson, who founded Presstite in 1924, will continue his association with the company, which will be operated as an American-Marietta Div. under the active management of Cyril H. Smith, president, and his associates.

'Genetron' Wall Chart Gives Technical Data For Firms, Schools

NEW YORK CITY—A large-size technical wall chart giving pertinent physical and vapor pressure data for "Genetron" fluorinated hydrocarbon refrigerants is now being distributed by General Chemical Div., Allied Chemical & Dye Corp., to refrigeration and air conditioning wholesalers and manufacturers, and to schools and colleges which are conducting refrigeration courses.

The chart is intended to be used as an educational aid and reference source for data on the four major "Genetron" refrigerants.

Such data as freezing point, boiling point, liquid and vapor densities, solubilities, etc., and vapor pressures over a wide temperature range are provided for "Genetron" 12 (Dichlorodifluoromethane), "Genetron" 141 (Monochlorodifluoromethane), "Genetron" 11 (Trichloromonofluoromethane), and "Genetron" 226 (Trichlorotrifluoroethane), according to the company's announcement.

The chart measures 27 by 30 in. and is varnish coated to prevent soiling. Free copies are available on request to "Genetron" Dept., General Chemical Div., Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y.

Bush Mfg. Erects 2 New Warehouses

W. HARTFORD, Conn.—Bush Mfg. Co., manufacturer of air conditioning, refrigeration, and heating products, has erected two new warehouses, one of 35,000 sq. ft. at the main plant here and one of 5,000 sq. ft. at the company's west coast plant in Riverside, Calif.

Company officials point out that the two additions will free much-needed manufacturing space which can be devoted exclusively to production.

Firm Publishes Service Schedule for Out-of-Towners

TWIN FALLS, Idaho — A weekly schedule of service for out-of-town customers has been established by Anderson's department store here and publicized in newspaper advertising.

The store notified Magic Valley customers that its factory trained service specialists would be on the road every Tuesday, Wednesday, Thursday, and Friday.

The advertisement listed the towns the servicemen would visit on each of these days. It asked readers to write or telephone their service complaints to the store. Then on the day scheduled, the serviceman would call to solve their problem.

Readers were asked to clip and save the schedule for future reference.

New Technique Claimed To Reduce Pipe Joining Time



Soldered pipe joints in one tenth the time it took previously is the claim made by Robert L. Dees, owner of the Washoe Sheet Metal Co., of Reno, Nev., for his new soldering operation. Dees, who fabricates heating installations and commercial and industrial sheet metal products, now handles all hot air pipe tacking with solder. He had been using metal screws. Dees solders with a Torch-O-Matic, an automatically-fired acetylene torch. Tacking takes 30 seconds. Using screws, each joint required five minutes.

Dees also finds the torch especially good when soldering must be done in confined spaces. A trigger-type firing device allows a man to ignite the torch with one hand. When the trigger is pressed acetylene is released through the muzzle and is lighted simultaneously by a match-like striking device. When the trigger is released, the torch shuts off.

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keeps valves
100% clean!



MODEL 410 Trap-Dri...

assures 100% acid removal,
plus complete moisture adsorption

The difference Trap-Dri makes on valve parts is dramatically apparent above! Put Trap-Dri's five-point protection against acids, moisture and dirt to work for you.

1. 100% acid removal — Stops corrosive action on valve parts.
2. New PA 400 silica gel has 98% greater moisture adsorption capacity than conventional silica gels.
3. Exclusive "Depth filtration" — more filtering area than any other drier.
4. Pressure drop less than 2 lbs. at rated Trap-Dri capacity!
5. Hermetically factory-sealed. Plastic caps keep out dust and moisture.

Trap-Dri is available in 20 models — flare and solder connections — for systems from 1/2 to 12 tons.

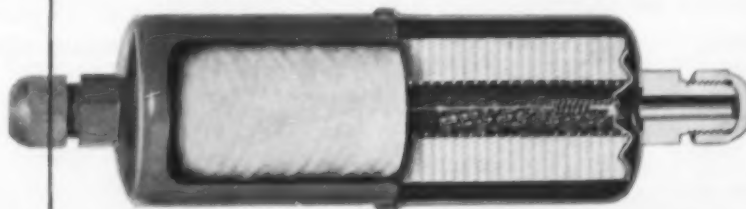


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improves valve operation.

Best protection any expansion or solenoid valve ever had!

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Court Verdict Upholds Akshun Patent Rights

CHICAGO—A U. S. District Court has rendered a verdict upholding patents held by the Akshun Mfg. Co. in its action charging Kent Industries with infringement of U. S. patents 2,659,212, 2,683,357, and 2,716,869.

The Akshun Co. states that Kent is being licensed under its patents.

The main patent—No. 2,716,869—consists of 10 claims, which cover the method of making dry ice on the inside of a vertical cylinder, and removing the ice by a scoring process. In addition to this, say Akshun officials, a new and improved method of separating the water from the ice so as to produce a completely dry ice, is covered by this patent.

Following is the findings of facts and conclusions of law in this lawsuit, No. 55 C 605, in the U. S. District Court, northern district of Illinois, eastern division, Judge Walter J. LaBuy presiding.

FINDINGS OF FACT

1. This is a patent infringement suit charging the defendants, and each of them, with infringing United States Letters Patent Nos. 2,659,212, 2,683,357 and 2,716,869, all right, title and interest of which have been assigned to and are the property of AKSHUN MFG. CO.

2. This Court has jurisdiction of the parties and of the subject matter.

3. The patents in suit relative to certain unique improvements in commercial ice making machines.

4. Commercial ice making machines have been used for a number of years, but Plaintiff was the first to introduce an ice making machine having the ability to effectively form dry, crisp, flake ice in a highly efficient manner. Each of the patents in suit above referred to, is directed to such features.

5. The commercial ice making machines comprising the inventions of the patents in suit were new, unique and different from prior construction of commercial flake ice making machines.

6. The commercial flake ice making machines comprising the inventions of the patents in suit overcame the long standing objection to commercial ice making machines of prior art commercial ice making machines.

7. Defendants, upon appreciating the unique features and superiority of the commercial flake ice making machines embodying the inventions in suit, began manufacturing commercial flake ice making machines embodying the features of the patents in suit.

8. The accused commercial flake ice making machines do not follow the teachings of the prior art patents or publications, but follow and embody the teachings of the patents in suit.

9. The commercial flake ice making machines comprising the inventions of the patents in suit were a vast advancement in the commercial ice making machine field. They met with commercial success and the sales of the accused commercial ice making machines are increasing year by year.

10. None of the prior art patents and publications cited by Defendants anticipates the construction and inventions of the patents in suit, and the commercial flake ice making machines embodying the patents in suit possess meritorious invention over the prior art. The steps taken by the inventors of the patents in suit were not obvious nor within the routine skill of those skilled in the art and it required invention of the quality required by 35 USC 103 to produce commercial flake ice making machines of the patents in suit.

11. The accused commercial ice making machines found literal response to the claims of the patents in suit and these claims have been infringed by the accused structures.

CONCLUSIONS OF LAW

1. United States Letters Patent—Nos. 2,659,212, 2,683,357, 2,716,869 are valid.

2. Defendants, and each of them, have infringed the claims of said patents by manufacturing and selling the accused commercial flake ice making machines.

3. Plaintiff is entitled to the relief prayed for in its Complaint.

Sunroc Corp. Purchases P.O. Moore of N.Y.

GLEN RIDDLE, Pa.—Sunroc Corp., water cooler manufacturer here, recently acquired P. O. Moore, Inc., New York City, and will continue that company's operations as a subsidiary, the firm announced.

Richard A. Angus has been named vice president of Moore and its chief administrative officer. W. Elwood Hough, former president, will carry on as sales manager for the firm's TelKee "Complete" key control systems.

Harry Fogel To Become Sweden To Open New Manufacturer's Agent Columbus Assembly Plant

PHILADELPHIA — Harry Fogel, formerly vice president of sales for the Jordon Refrigerator Co., has indicated that he intends to establish a manufacturers' representative sales agency here.

The agency will operate out of his home at 1205 Stratford Ave., Melrose Park, Pa.

Jordon is now a subsidiary of United States Air Conditioning Corp. Fogel resigned as a UsAirco board member recently.

SEATTLE—A new assembly plant in Columbus, Ohio will be put in production early in April by Sweden Freezer Mfg. Co. to handle milk shake making machines, Harvey F. Swenson, president, has announced.

"The setting up of this assembly plant in Columbus is being done to gain added production for our company because of the widespread acceptance by the restaurant, drive-in, and soda fountain trade of our new model

milk shake machine, which was introduced to the trade last October," Swenson said.

Various Columbus subcontractors, who specialize in machine shop, welding, and sheet metal work, will be used. Some of the more specialized assemblies requiring a high degree of skill and specialized equipment, will be produced in Seattle for the Columbus plant, it was stated.

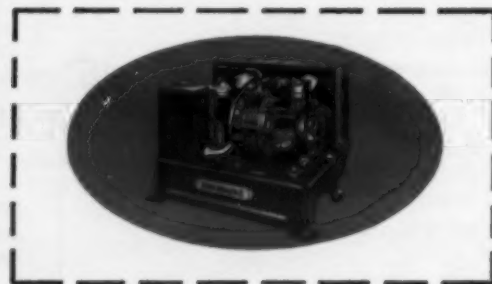
John E. Ross, procurement manager of the Seattle plant, has been assigned to head up the Columbus operation.

Sweden Freezer Mfg. Co. was formed by Swenson in 1932.



Please Customers, Employees

... by providing a convenient Frigidaire Water Cooler—always ready with the finest, most refreshing drink ever enjoyed. See your Frigidaire Dealer for a complete selection of pressure and bottle type models.



Make Food and Drinks More Appetizing

... with sparkling, clear Frigidaire ice cubes or cubelets. Customers appreciate the solid, long lasting ice. And you'll like the economy and dependability that only a Frigidaire Automatic Ice Cube Maker can offer. Your Frigidaire Dealer has two compact models, making up to 200 and 450 lbs. of ice per day.



Dependable Cold-Making Power

... is supplied at lowest cost with Frigidaire compressors. Your Frigidaire Dealer has a complete line and can recommend the model exactly suited to your present or new refrigeration equipment.

See Need for 'F-22' Unit for Very Low Temp Cases 6-Gal. 'Bottle' May Cut

PHILADELPHIA — Don A. ing Engineers. Voorhies, director of engineering for C. V. Hill & Co., Inc., speaking here on "Multiple Commercial Installations," said there is a trend to individual units in supermarkets as this permits easy rearrangement of cases with changes in merchandising ideas.

Individual unitized display cases do not need major alteration for relocation of piping, etc., he noted in addressing the Philadelphia Section of the American Society of Refrigerat-

Fedders Names Outlet

RALEIGH, N. C.—McCracken Supply Co., located in Raleigh and in Greensboro, N. C., has announced its appointment as distributor in the North Carolina territory for Fedders air conditioners.

Milk Hauling Costs

SPRINGFIELD, Mo.—A new 6-gal. "bottle" used to haul milk products long distances is expected to save farmers a lot of money this year, according to Producers Creamery Co., a local co-operative which developed it.

The square bottle is a plastic sack inside a cardboard carton and weighs 2 lbs. Priced at 36 cents, it can be used to ship condensed milk, cream, ice cream mix, or cottage cheese, the co-op said. It is a throw-away item not

designed for farm-to-factory or consumer use.

Said to eliminate washing, re-pairing, re-tinning, storing, returning, normal refrigerated life, by test, of the products contained in the package is 18 days. It is claimed that only a slight amount of any product will stick to the polyethylene sack. A fully-loaded semi-trailer can carry 30% more cream, as an example, in the new packages than under other systems.

The Producers Creamery Co. will license its bottle to other shippers.

Council To Authorize 3-A Symbol for Some Dairy Equipment

WASHINGTON, D. C.—The 3-A Sanitary Standards Symbol Administrative Council—which will regulate the identification of dairy equipment which conforms to 3-A Sanitary Standards—is now ready to accept applications for use of an identifying symbol from manufacturers prepared to certify that equipment they produce conforms to applicable 3-A Sanitary Standards.

The Council has announced that, at present, use of the 3-A symbol will be authorized only on conforming storage tanks for milk and milk products and on conforming weigh cans and receiving tanks for raw milk.

Applications for use of the symbol on other types of equipment now covered by almost 20 3-A Sanitary Standards will be invited in due course.

Manufacturers of storage tanks and weigh cans and receiving tanks, who wish to use the 3-A symbol on their products should send for application forms to C. A. Abele, Secretary, 2617 Hartzell St., Evanston, Ill.

Authorizations will be specific for each type of equipment, but will cover all models thereof listed in the application. The annual fee for each authorization is to be \$25.

The 3-A Sanitary Standards Symbol Administrative Council is composed of four representatives of the International Association of Milk and Food Sanitarians' Committee on Sanitary Procedures; two representatives of Dairy Industry Committee's Sanitary Standards Subcommittee, representing users of equipment; and two representatives of the Technical Committee of Dairy Industries Supply Assn., representing manufacturers.

Cochran Succeeds Stephens In Warren's Western Division

ATLANTA—R. Brent Cochran began his duties recently as western divisional manager for The Warren Co., Inc., commercial refrigerator manufacturer here.

He succeeds Glendon W. Stephens, who died suddenly Dec. 2. Cochran will headquarter in the Los Angeles area.

Cochran has had extensive experience in the refrigeration field. His first employment included a number of years in the ice and fuel business in Ohio and Michigan, with duties pertaining to sales and advertising.

He later moved to California to serve as assistant sales and advertising manager for Ward Refrigerator Mfg. Co., Los Angeles. He was soon advanced to the position of sales manager of wholesale distribution.

After approximately 10 years with Ward, Cochran became a part of the management of Vering, Inc., Los Angeles, and just prior to joining Warren was associated with Paul F. Olsen Co., also of that city.

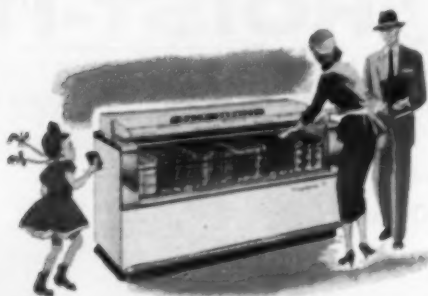
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High Velocity Air Distribution (1)

*Decision To Use It Must Be Based on Design Conditions;
Contractor Offers Some Practical Design Suggestions*

This is Part One of a two-part report covering the High Velocity Symposium held at the 62nd annual meeting of the American Society of Heating & Air Conditioning Engineers. Consensus seemed to be that the decision as to whether to use a high or low velocity system must be decided on the basis of the cost factors involved in each individual case.

By C. Dale Mericle

CINCINNATI — Despite the rapidly growing interest in high velocity air distribution, there are still many problems to be solved, and such systems are not always the least expensive for air conditioning large buildings.

Thus could be summarized a symposium covering many phases of the subject which was

staged by the American Society of Heating & Air-Conditioning Engineers at its 62nd annual meeting here.

Costs, duct design and construction, noise, and field testing received a rather thorough airing from five speakers.

"The many variables involved in making a cost evaluation prohibits any categorical statement

that a high velocity system is more or less economical than a low velocity system; each problem must be analyzed separately and on its own merits," declared John Everetts, Jr., consulting engineer with Charles S. Leopold.

Citing some specific examples, Everetts said if the building cost, in these cases, was more than \$2 per cubic foot, a high velocity system would be justified, otherwise, not.

Besides Everetts, the panel included C. M. Wilson, general sales manager, Anemostat Corp.; Dan Callaway of Industrial Sound Control, Inc.; Wm. L. Batchelor of Tuttle & Bailey,

Inc.; and K. A. J. Monier, a San Antonio contractor. Moderator was P. B. Gordon, newly elected first vice president of ASHAE.

In analyzing economic aspects, Everetts prepared estimates on two buildings: a four-story large area structure, and a 12-story small floor area building. Supply ducts and air quantities in each were identical, a total of eight duct systems being provided for each building.

Comparisons were made between using eight fans each having a capacity of 44,000 c.f.m. as against two fans each rated at 176,000 c.f.m. In addition, comparison was made between using a 18° temperature difference between room temperature and delivered air temperature, and using a 30° t.d.

Discussing duct design, Wilson declared that "it is not correct, at this time, to state that a particular duct sizing method is the best that can be evolved, but there is evidence that an analysis of the working components and a detailed study of the fluid flow sections will enable the engineer to produce a satisfactory design."

Duct Design Methods Not Interchangeable

"It can be definitely stated that duct design methods which are reasonable for low velocity systems cannot be used without revision or adaptation for high velocity duct design," Wilson said.

By "high velocity systems" Wilson explained that he was referring "only to systems where attenuating devices are used at all outlets."

Important segments of high velocity duct systems, he said, include the valve-attenuator-diffuser combination, end section of the system, pressure-sound characteristics of standard valve-attenuator combinations, takeoffs and transitions, and temperature differential.

"Although some complex methods have been evolved, most of the systems now in use have been designed using a combination of the equal friction, static regain, and total

friction methods," Wilson commented.

Practical Assumptions Must Be Adapted to Design Problems

"As with all systems, some practical assumptions must be made and adjusted to the particular design problem," he added.

"Having established the air quantities and made the single line layout to establish length and turns of the ducts, the designer uses the equal friction chart to size the main duct. Experience has shown that a starting velocity of about 4,000 f.p.m. is a reasonable value.

"Using the equal friction chart, the designer intercepts the 4,000 f.p.m. mark. If the intercept is to the right of the 1 in. per 100 ft. mark, it is advisable to reduce velocity and get on this line as quickly as possible. This is based on experience and assumptions.

"When quantities are higher than 8,000 c.f.m. it is reasonable to size at constant velocity until the 1 in. per 100 ft. line is reached and then follow it down with resultant velocity decreases. It can be noted that when the capacity is 500 c.f.m., which suggests that the last two diffusers have been reached the velocity has dropped to 2,000 f.p.m.," Wilson explained.

"The friction chart values multiplied by the equivalent lengths of ducts give the friction in the main duct from the plenum to the last valve attenuator. To this value must be added the highest minimum pressure of the attenuators near the end of the main line and any other direct losses such as the plenum or sound trap loss.

"From this value deduct the static regain in accordance with the standard formula. In the average system this amounts to about .4 in. Be sure that minimum velocity used is not less than the velocity required at the inlets to the last valve attenuators on the line. The minimum static is given as a function of capacity so the flow

(Continued on next page)

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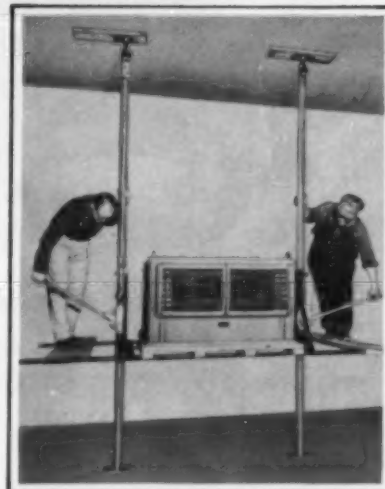
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High Velocity Systems--

(Continued from preceding page) is really a function of total pressure.

"The last step does not affect the fan horsepower, but it does save money on ducts and valve attenuators. Determine the pressure in the main duct at the main branch intercepts. Then, knowing the minimum pressure required at the last attenuator at the branch, the difference should be used up by using small ducts at high velocity and 90° takeoffs to lose the velocity pressure," Wilson suggested.

Duct Design Technique Summarized

"Summarizing the duct design technique described herein, the steps are outlined as follows:

"1. Analyze the fluid flow characteristics of each section of the duct system with special study being given to the conditions near the end of the main duct run.

"2. Carefully select valve-attenuator combinations with special attention for minimum static pressures at the last section of the main duct run.

"3. Study the temperature differential in the interest of reducing the air quantity.

"4. Start the main duct out at approximately 4,000 f.p.m. and move into the standard friction chart at the 1 in. per 100 ft. line or less and pick off the duct sizes by following the line straight down.

"5. Give the system credit for static regain in accordance with the standard formula.

"6. Determine the pressure in the main duct at the main branch intercepts and use the difference between this pressure and the minimum pressure of the valve-attenuator by right angle takeoffs and high velocity high friction small ducts," Wilson advised.

Noise Control More Urgent In High Velocity

"Noise control is a more urgent problem in high velocity systems," pointed out Dan Callaway of Industrial Sound Control, Inc., who explained that in high velocity systems engineers face the problems of (1) fan noise, (2) duct noise, and (3) valve noise.

"We need much more data from fan manufacturers on the noise emitted into ducts," he declared, commenting also that "smaller size ducts tend to raise the noise frequency while larger ducts to lower frequency."

It was suggested by Callaway that sound treatment must be closer to the air outlet than the inlet to be most effective.

Some 'Tricks of the Trade' Outlined

Most applause given any speaker at the symposium went to K. A. J. Monier, who outlined a contractor's viewpoint of high velocity systems and some "tricks of the trade" his firm has developed for installing such systems.

"Quite naturally, the aggressive mechanical contractor is interested in high pressure and medium pressure systems," Monier said, "for the following reasons:

"1. In view of the rising labor and material costs, a reduction

in the weight of metal and resultant labor is a progressive, logical step to maintain minimum installed prices for the industry;

"2. The reduction of attendant costs, such as less insulation, less cutting, patching, and furring, and others, assist in the reduction of these costs;

"3. The need for less space not only assists in economies to the owner, but makes for greater ease of installation in limited spaces that very often involve conflicts with other trades due to the lack of coordination between the architectural, structural, mechanical, and electrical designs during the planning stages;

"4. The ability of engineers to utilize more double duct design for the furnishing of what is needed in various zones or rooms including heating in some

areas while cooling in others, makes for a satisfaction to the installer of truly having put out his best as well as increased customer satisfaction.

"Having made the remark of less weight and lower labor costs, it is realized that this may be at variance with the thinking of many, and is at variance with many articles and studies on the subject," Monier commented.

Exploring New Methods

"Experiences on initial installations of new types of systems tend to accentuate caution, particularly those reservations as to high pressures, such as, the need for excessive welding, excessive tapes, and excessive sealants. Realizing the costlier nature of such safeguards, on more recent installations our firm has attempted departures from tried and true methods with the sole purpose in mind of economy, but not at the ex-

pense of lasting endurance and quality.

"This resulted in explorations in two categories:

"1. The use of new methods and techniques in the shop and in the field.

"2. The use of varied means of sealing and taping.

"First, it is believed that the words 'high pressure' and even 'medium pressure' are words that cause too much concern to the industry as a whole. Actually, duct construction methods and procedures for conventional systems, as well as forgotten practices of blowpipe and exhaust systems, are practical and adequate for the so-called high pressures," Monier emphasized.

"Naturally, throwing all economy requirements to the winds, nothing could be better than a completely welded or soldered job with heavy gauges or with much use of sealants, adhesives, and tapes. With the point of view of not belittling these

methods but offering satisfactory, more economical substitute procedures, the following tried and proven techniques are offered.

"By using a standard lock-former and following this procedure with an electric stationary grooving machine to tightly fold the metal to form the finished Pittsburgh lock, we have been able to hold pressures up to 20 in. of water without any additional sealant applied to the groove before folding.

Trouble-Free Seams

"The even pressure and tight fold have produced trouble-free seams as compared to the usual method of folding by mallet or air hammer. This method can be used on round or rectangular ducts of gauges and sizes to cover practically all sizes in the largest fan systems," Monier declared.

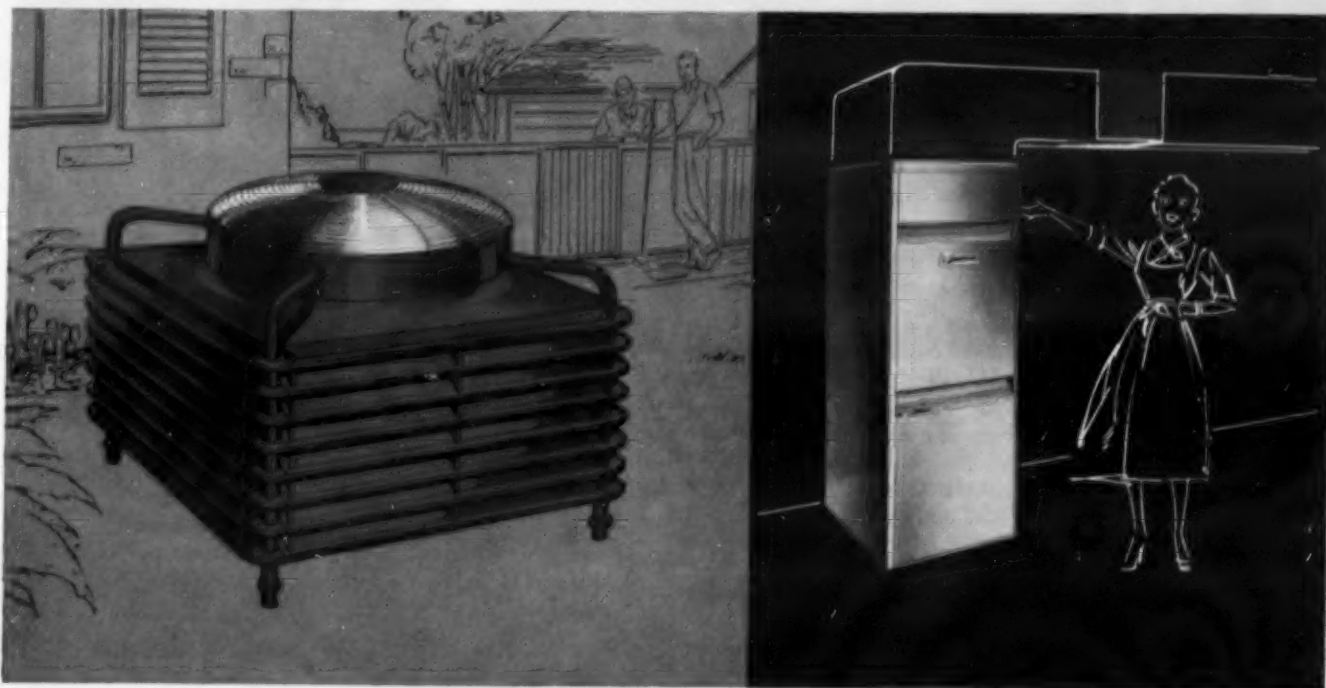
"To obviate the need for

(Continued on next page)

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For more information about products advertised on this page use Information Center, page 36.

High Velocity Systems--

(Continued from preceding page) crimping and the attendant troubles of air leakage as well as obstruction to air movement in the joining of round ducts, the rolls were, shall we say, retrieved from the days of the old water well casing or tubing. These rolls swedge the metal out at the joint to allow a smooth interior surface as well as a rigid connection.

"It was necessary to clip the part of the Pittsburgh seam on the male section and to spot emboss in order to allow taping without use of sealants. By this method and the use of spot welders or tack welding, prefabricated sections up to 25 ft. long can be made up without fear of damage prior to installation.

"To digress a bit at this point, we experimented unsuccessfully

to form a cant-levered pipe section approximately 15 ft. long out of double extra heavy pipe with the bottom lead of the spot welder fed down through the pipe to a point where the other contact could be made.

"Due to electrolytic fields caused by the round metal including the duct, we have not been successful to date, but feel that the proper amount of copper placed in the right place will prove successful. The development of this will allow spot welding joints on sections up to 30 ft. long at every joint," Monier said.

Aluminum Tape Used

"On the above-mentioned swaged joints, there was applied two layers of tape, one layer 1 in. wide, and a reinforcing layer 2 in. wide over the

initial tape. Numerous types of tape were experimented with, but the most satisfactory was an aluminum tape of high adhesive qualities that had a malleable characteristic to conform to the uneven nature of the joint, there being one thickness of metal difference in section elevation. The tape was worked into the voids by means of soft wood paddle sticks and smoothed on to a clean surface.

"In this way, pressures in excess of 20 in. of water were satisfactorily held without any additional adhesives. Pliable elastic adhesive tapes were found not to adhere tightly enough over voids, particularly at the Pittsburgh seams, to prevent leakage at the high pressures unless additional sealants were applied," explained Monier.

"The question might be raised as to whether the above procedure is comparable in quality and economy to that in which

sealants are used. Actually, it is felt that the cost of labor and material is in favor of use of the tapes plus the added advantages of a cleaner possibly more durable job.

"Also, until recently, it was impossible to find sealants that would allow use of spot welders due to the inflammatory nature of the sealants. Then, too, the use of sealants in seams is a costly proposition in materials, slow-up of production, and necessary frequent cleaning of machines and tools," he pointed out.

(To Be Continued)

General Controls Chicago Branch Names Mitchell

GLENDAL, Calif.—John A. Mitchell has been named field representative for the Chicago factory branch of General Controls Co., it was announced by J. F. Ray, the firm's vice president in charge of sales.

Lau To Boost '56 Production 50% over '55

DAYTON—The 1956 production schedule of Lau Blower Co. will be 50% greater than in 1955.

The firm, which manufactures blowers for the air conditioning and heating industries, along with household electric fans, will also spend \$850,000 for new tools and machinery.

These facts were revealed by Harold W. Faulkender, Lau president, in a statement detailing 1956 plans.

The production increase can be attributed in large part to expansion of Lau facilities at Dayton and at branch factories in Azusa, Calif., and Kitchener, Ont., Can., it was stated.

TO MOVE INTO DAYTON PLANT ADDITION

"We will soon move into our new plant addition in Dayton," Faulkender pointed out. "Here alone, our space will be increased by 56,000 sq. ft.—34,000 sq. ft. are destined for production space, with 22,000 sq. ft. for offices and engineering.

"At our Kitchener plant, we are building an additional structure which will double our space there. In Azusa, we have purchased land and erected a building."

Faulkender noted that the plants in Kitchener and Azusa, formerly devoted to assembly of the firm's products, are now fully integrated factories, manufacturing and assembling Lau's line of air moving products. Robert Strouth is plant manager at Kitchener, while Richard Mahuron is in charge of production at Azusa.

EXPENDITURES FOR 2 NEW BLOWER PRODUCTS

Faulkender noted that the firm will spend approximately \$175,000 for special equipment and machinery for two new blower products.

"Our new Preslok blower wheel will require \$125,000 in new equipment," he continued. "The Electro-Wheel Blower, with the motor mounted inside the wheel, will require \$50,000 worth of machinery and a special intricate device, which will balance and coordinate the motor and blower wheel."

Faulkender said that approximately 70% of the firm's blowers will be used in warm air heating equipment, with 30% used in air conditioning.

"During the past five years," he stated, "the percentage of blowers used for cooling and refrigeration has climbed from 15% to 30% of our output."

LAU PRODUCTION IS 75% BLOWERS

Approximately 75% of Lau's production is devoted to the manufacturing of blowers, with the remaining 25% to the making of Lau portable, window, and attic fans. Faulkender feels that despite the rapid growth of the air conditioning industry, the fan business will keep pace.

"Air conditioning has made the nation comfort-conscious," he pointed out. "As our air conditioning business increases, so does our fan business."

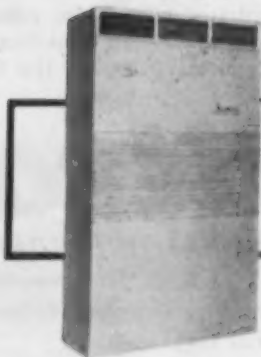


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1. You must have—and demand from us—integrity, experience, leadership potential.
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3. You must welcome strong distributor backing and servicing.
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6. You must be willing to call on sales assistance when you need it.
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8. You must want your sales aided by large-scale national advertising.
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Can you qualify for an Airtemp Franchise Dealership under those nine points? If so, your Airtemp distributor offers you the one line of air conditioning that meets every need. Call your nearby distributor or write: Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.



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Control Valve Firm Releases Catalog

—KEY NO. R-420—

CHICAGO—Refrigerating Specialties Co., manufacturer of refrigeration control valves, recently released an eight-page condensed catalog of its products.

The new catalog contains, in condensed form, full capacity data and selection information for "Freon" and ammonia solenoid valves, back pressure regulators, evaporator controls, and condensing water regulators for medium and large air conditioning and industrial refrigeration applications.

Other new detailed instruction and application bulletins are available regarding refrigeration control valves for hot-gas defrosting, low temperature, cooling tower water controls, and other special applications.

Aluminum and Reach-Ins Is Topic of Koch Book

—KEY NO. R-421—

KANSAS CITY, Kan.—"Aluminum and Reach-In Refrigerators" is the title of a new four-page bulletin recently issued by Koch Refrigerators, Inc. here.

This is a four-page discussion by C. K. Litman, vice president of Koch Refrigerators, on the characteristics of aluminum, particularly as it applies to refrigerator construction and use, and comparisons with other kinds of materials used in refrigerators.

'Do-It-Yourself' Book

Helps Dealer Range Sales

—KEY NO. R-422—

CHICAGO—A booklet containing plans and tools to help dealers sell more electric ranges based on the "Do It Yourself" theme recently was issued by range merchandising section, Hotpoint Co.

Divided into three sections, plans, tools, and proven demonstrations, the booklet suggests different types of parties a dealer can hold, civic tie-ins, and 18 ways to demonstrate ranges. Advertising, films, premiums, decorations, and specification sheets are also included.

Trane Bulletin Covers 'CenTraVac' Equipment

—KEY NO. R-423—

LA CROSSE, Wis.—A new Trane Bulletin DS-399 gives complete data on the company's full range of "CenTraVac" centrifugal refrigeration equipment, which is used to provide chilled water for air conditioning and refrigeration systems.

The 50-page bulletin provides engineering and capacity information on 20 CenTraVac sizes, including six entirely new models in the 400 to 600-hp. range. In addition to the larger CenTraVacs, information on eight new models in the 50 to 300-hp. range is given.

Typical installations of this automatic, hermetic water chiller are shown.

Manual Covers Mueller Heating Equipment

—KEY NO. R-424—

MILWAUKEE—Features and advantages of Mueller Climatrol heating equipment are outlined in the new Features Presentation Manual.

The manual is designed for closing the sale to the customer. The presentation is a 36-page loose-leaf booklet entitled "Make Yourself Comfortable" which has the sales points printed in extra-large type.

All features are highlighted with

illustrations. The booklet is read through by the salesman while the prospects watch and listen.

The manual includes a 32-page instruction and fact outline for the dealer's personal use.

Chicago-Wilcox Lists Available Dies

—KEY NO. R-425—

CHICAGO—A list of over 1,500 dies stocked and available to users of gaskets, shims, and washers was published recently by Chicago-Wilcox Mfg. Co.

Form 33 shows customers' how to meet many die requirements without die costs, the company said.

Waterloo Offers Air Outlet Selection Table

—KEY NO. R-425—

WATERLOO, Iowa—A six-page size selection table for air outlets on commercial jobs is now being offered by the Waterloo Register Co., Inc. here.

Every figure used in the table is based on very recent laboratory tests of Waterloo's four-way directional control grille, which features the "Silent Flow" tear-drop design of extruded aluminum louver, the company said.

To make selection simpler, salient features are emphasized in red.

While the selection table is

available as a separate folder, it is also an integral part of all Waterloo Register's new series 9-55 catalogs, the manufacturer pointed out.

Recold Catalog Details Water Defrost Units

—KEY NO. R-426—

LOS ANGELES—An illustrated catalog, 8C5a, on the new "Recold" water defrost floor units is offered by Refrigeration Engineering, Inc. here.

This basic refrigeration unit is also available for high or low temperature use with or without defrost.

Drayer-Hanson Announces Water Chiller Bulletins

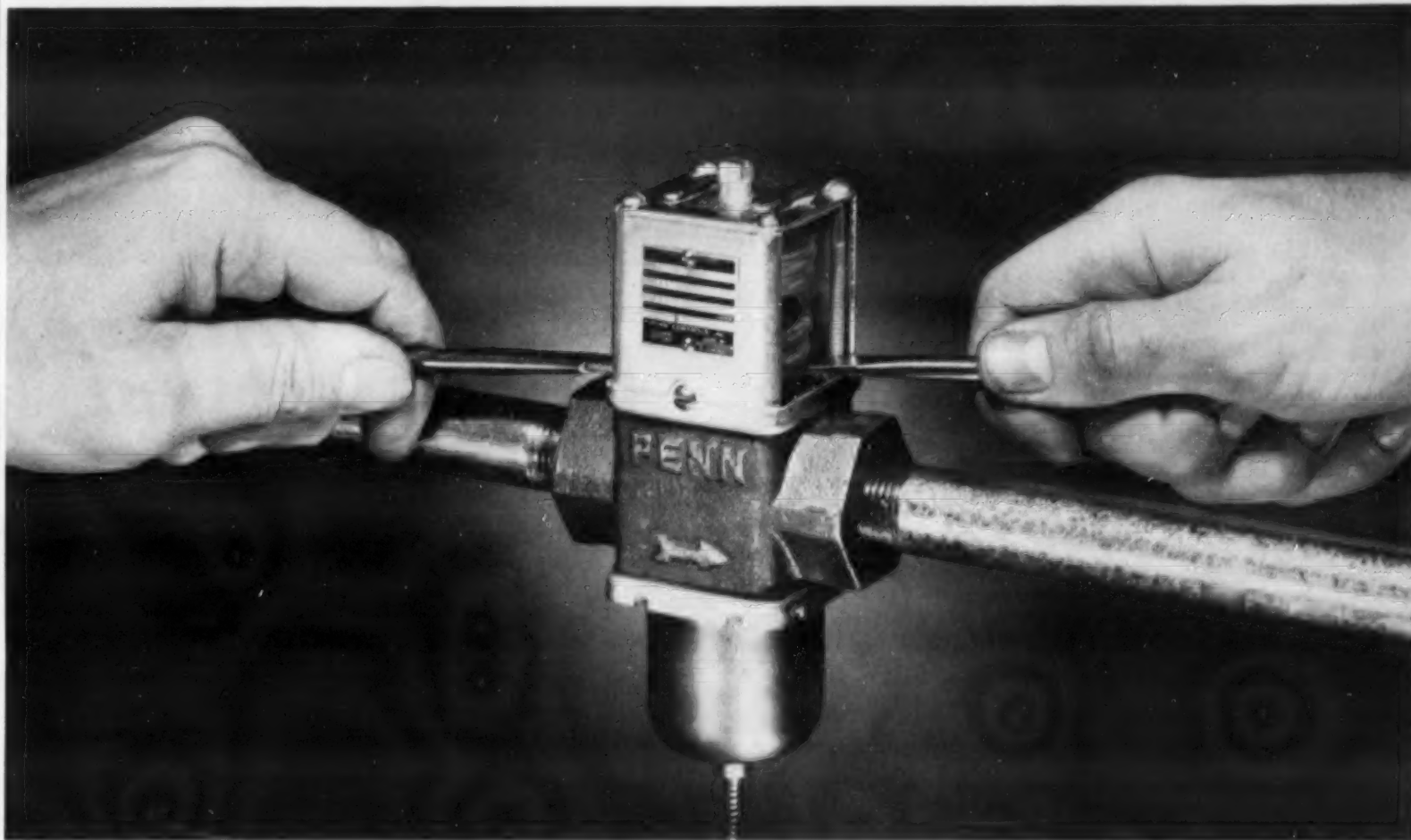
—KEY NO. R-427—

LOS ANGELES—Drayer-Hanson, Inc. has announced availability of bulletins on its recently introduced "packaged" water chiller line.

Separate publications cover air-cooled and water-cooled models now manufactured in 2 and 3-ton sizes.

Dimensional drawings are included in each sales piece.

Informational charts and electrical characteristics round out both bulletins—C-K.622A and C-K.622W.

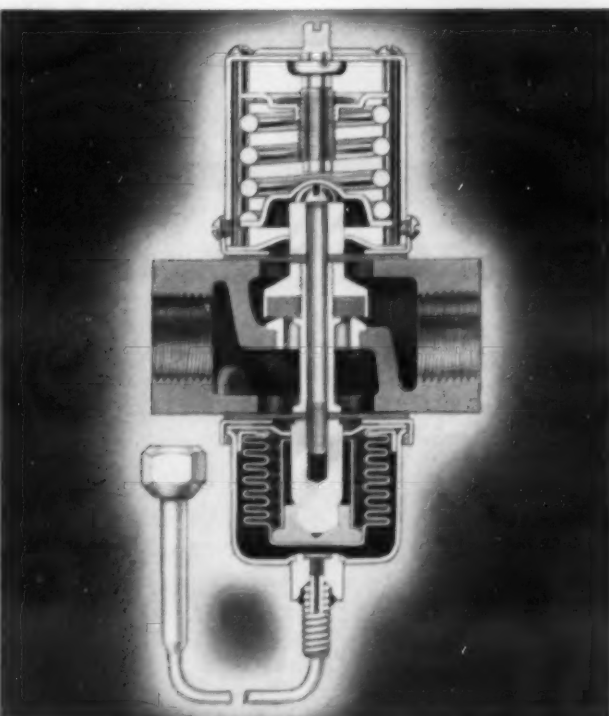


SEE HOW EASY IT IS TO FLUSH PENN WATER VALVES

2 screw drivers, a flip of the wrists—and PENN is ready for long, trouble-free service

Only Penn water valves offer such easy manual flushing! And, you know how important it is to flush out any newly-installed water valve. With Penn, all you do is insert two screw driver blades under the range spring and lift up. All the pipe cuttings, solder balls, rocks and other foreign material that normally get into the water lines during installation are washed away. Easy-to-flush, Penn eliminates those costly service call-backs due to improper valve seating.

That's just part of the story. Penn water valves are highly sensitive to changes in refrigerant head pressures, assuring top efficiency. There's no valve chatter, no water hammer, no rusting of range spring, no corrosion of sliding parts. Sizes from 1/4" to 2 1/2" in flanged or threaded styles—and also available for temperature actuated service. Ask your wholesaler.



Cutaway view shows how 2 nylon-reinforced synthetic diaphragms in Penn water valves keep water away from the bellows, range spring and sliding parts. Penn puts an end to rust, corrosion and sedimentation, the deadly enemies of ordinary water valves.

PENN CONTROLS, INC. Goshen, Indiana

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Air Conditioning and the Builder

Home Systems Must Provide Good Equipment Properly Installed To Assure Customer Satisfaction, Builder Profit, Says Gilkey

CHICAGO—"If you want air conditioning to help you sell houses, you must sell air conditioning for what it is, not as a gimmick," Herbert Gilkey, technical director in the research department of the National Warm Air Heating and Air Conditioning Association advised builders.

"To do this," he continued, "you must recognize the difference between the cheap, gimmick-type of system and the year-round comfort type of system."

Installer Is Most Important Variable

"You must specify your equipment, system, and installer on the same basis that you specify the material which you use for the structural members of the house. This basis is the quality needed to do the job expected."

"You notice that I included the installer in this specification. . . . He is the most important single variable in the entire residential air conditioning picture."

"If you give the job to an unskilled and careless installer, you will not get a good system. Furthermore, you will experience a large number of complaints from your customers about the operation of the air conditioning system, and you will be bothered by a large number of service calls. . . ."

Service Calls Can Eat Up Profit

"Service calls can eat up the profit, both yours and the installers, which you hoped to gain from the air conditioning system. . . ."

"You have probably been inclined to place the blame for this on the installers and upon the air conditioning industry. Yet, you, the builder, must bear part of the blame for this."

Gilkey explained that an association survey revealed that experienced heating men who took care in designing and installing their air conditioning systems had fewer troubles with cooling than with heating systems.

"In other words," he said, "neither gold-plated equipment nor platinum ducts are substitutes for sound design and installation."

"Get the right installer," he advised, "give him a chance to do his job, and your complaints and service problems will shrink to insignificance. You will then find that air conditioning and the comfort it produces will become your salesman."

Heat Gain Calculation Is Prime Factor

Gilkey told the builders that one of the factors of prime importance that enters into the design and installation of any residential air conditioning system is the calculation of the heat gain of the residence.

"This is important from two standpoints," he said. "First, only with the aid of an accurate estimate of the heat gain can

the correct cooling unit be chosen.

"Second, the calculation will inform you if your houses are built so that they can be economically and satisfactorily cooled."

"Don't scoff at this, for there are many houses which cannot be cooled except at exorbitant cost and, even then, with only doubtful assurance that the occupants will be comfortable."

Gilkey recommended the use of NWAHACA Manual 11 for calculation of heat gain. He termed it a tried and proved method, simple enough for prac-

tical use.

Where summer cooling is to be installed, Gilkey said, there is no such thing as a single season air distribution system. It must be considered as a year-round air conditioning system.

Air Distribution Systems

He went on to explain some of the current systems of air distribution, pointing out particularly the advantages of the perimeter system.

"The conventional manner of distributing conditioned air within a space is through what may be termed an overhead duct

system," he further pointed out. "As applied to residences, this type of system usually includes registers located high on the inside walls of the rooms or diffusers located in the ceiling."

"Either of these arrangements can be very satisfactory for cooling if properly designed, installed, and adjusted. Recent experience has shown, however, that this is not necessarily the most satisfactory system available for residential use."

"One of the reasons for this is the relatively low ceiling height used in contemporary residential construction. The cooled air which enters the room through the register or diffuser has a natural tendency to drop toward the floor."

"Unless great care is exercised in the adjustment of the system, adequate mixing of the cooled air with the air already in the room does not occur be-

fore the stream enters the living zone—that region less than 6 ft. above the floor."

"When we say that adequate mixing does not take place, we are also saying that the cooled air is in the form of a definite stream, and, as such, can cause cold drafts."

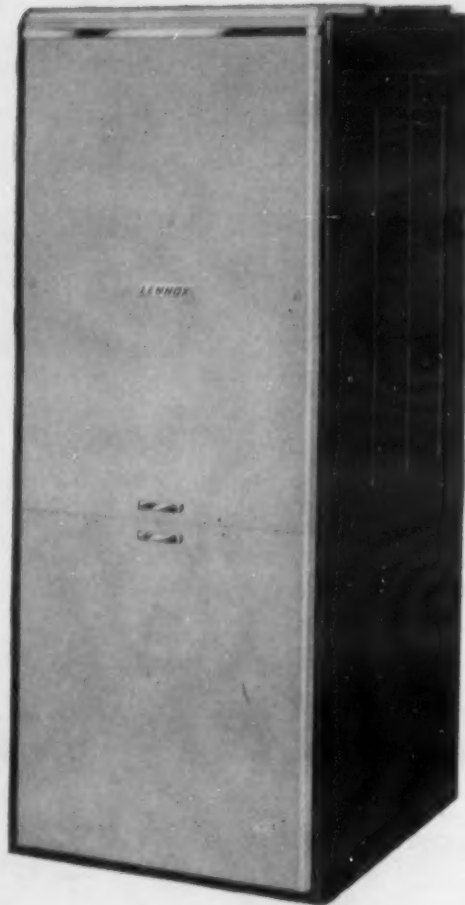
"If ceilings were higher, there would be more room for this mixing to take place and the possibility of cold drafts would be reduced."

"In the absence of higher ceilings, however, good adjustment of the system is needed and furthermore the most desirable summer adjustment is not necessarily the best winter adjustment."

Perimeter Concept Serves For Heating, Cooling

"The perimeter concept of introducing air into the rooms of (Concluded on next page)

Another reason more **AIR CONDITIONING DEALERS** are switching to



LENNOX

your builders'

AIR CONDITIONING . . . WITH HEATING OR ALONE . . .

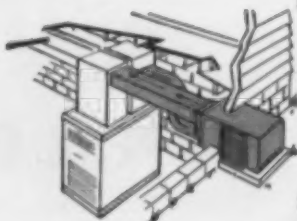
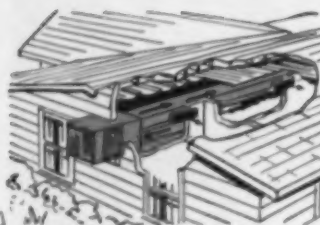
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- Air Cooled • Amazing Low Price
- Self Contained Unit • No Plumbing Needed

Air Conditioning and the Builder --

(Concluded from preceding page) homes or other buildings is just as practical for cooling as it is for heating.

"It is true that there are certain special considerations involved with cooling, but with perimeter systems it is possible to get around some of the major drawbacks to some of the more conventional systems.

"The basic characteristic of a perimeter system is the method of introducing the air into the room. The diffuser is always located at the outside wall and usually underneath a window. This was originally done because of heating considerations.

"When introduced in this manner, the warm air is directed upward and slightly outward from the wall in a fan-shaped pattern. This has proved most

effective in meeting and mixing with the inevitable curtain of cold air which drops along the window.

"Any of several types of perimeter diffusers may be used with this system. The original one was the floor diffuser. More recently low sidewall diffusers and extended baseboard diffusers have become quite popular for homes.

Diffusers Direct Air Upward

"All of these are specifically designed for use with the perimeter system in that they deliver the air upward, not outward into the room.

"This upward delivery is not difficult to achieve during the heating season since the warm

air has a natural tendency to rise.

"During the cooling season, however, it is necessary to introduce the air into the room with sufficient velocity that it will be thrown up to at least head level in the room.

"This is most easily done with floor diffusers, and air velocities at the diffuser face should be in excess of 400 f.p.m. when floor diffusers are used.

"With the other types of perimeter diffusers, sidewall, baseboard, and extended baseboard, it is necessary to use higher velocities—at least 500 to 600 f.p.m.

Draft Problem Minimized With Perimeter System

"These may seem to be rather high air velocities, particularly when we have already said that drafts are a definite problem in

air conditioning work. With perimeter systems, however, drafts are usually not a problem because of the delivery pattern produced by the diffusers.

"Since the air is delivered upward, it does not occupy any appreciable portion of the living area of the house, and the high velocities are limited to the immediate vicinity of the diffuser.

"Do not substitute conventional registers for perimeter diffusers. Not only will they cause objectionable drafts, but the air will not be forced up into the room and will remain near the floor. This latter effect can also occur if insufficient air velocities are used with perimeter diffusers.

"In general, it is necessary to use greater air-flow rates for cooling than for heating, and consequently cooling ducts must often be of larger size than ducts used for heating alone.

"For instance, it may be necessary to use 5 and 6-in. ducts for year-round air conditioning where 4-in. ducts would probably have been suitable for heating.

"Of course, it would also be possible to use a greater number of the smaller size ducts. This does have certain advantages, when practical, since it gives better air distribution.

"The distribution of the cooling load in a residence may be quite different from the distribution of the heating load.

"An example of this might be the southwest rooms of a house. In such rooms, the sun could impose an appreciably greater cooling load than in other portions of the house.

"During the heating season, however, the load might be more evenly distributed and these rooms, if comfortable in summer, would be overheated in winter.

"On the other hand, if these rooms were comfortable in the winter, there would not be sufficient cooling for them in the summer. Therefore, the system must be designed as a year-round system.

Return Duct System Must Be Well Designed

"The return duct system must also be carefully designed. Restrictions in the return system reduce the air flow just as much as do restrictions in the supply system.

"With one-story houses, it does not make much difference whether the return-air grille is located high or low, although a high return grille location may be preferable.

"In multi-level houses, however, it makes a terrific difference, and there are other considerations involved.

"For instance, on the upper levels of such a house, there should be individual returns in each of the rooms. These should be located high in the sidewall or in the ceiling.

"It will also be necessary to keep doors to second story rooms closed as much as possible. The reason for this is that the cooled air has a natural tendency to flow down the stairs if doors are open and to settle near the floor if low returns are used.

"If individual returns are impractical, place a grille between the room and the upstairs hallway and use a common ceiling or high wall return somewhere in the hall.

"All ducts located in attic spaces must be insulated. This applies to both supply and return ducts. Use at least 2 in. of insulation on such ducts.

"Even more insulation would be desirable. Do not neglect to do this—it is essential if you expect to get any cooling at all from the system."

ARE YOU QUALIFIED TO BE A DISTRICT MANAGER

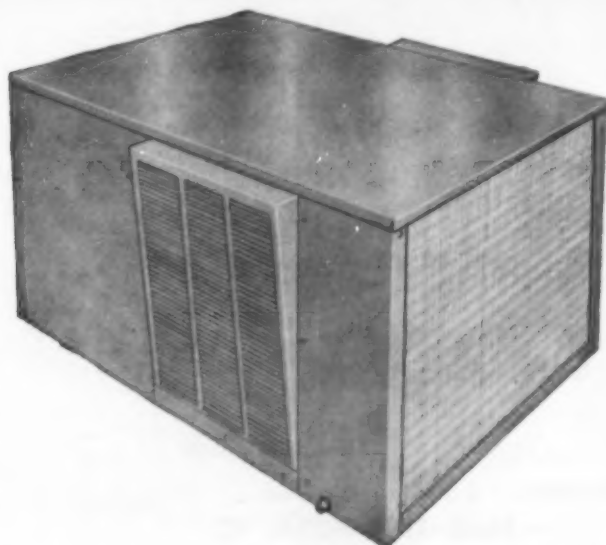
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to sell to builders . . . then helps the builders sell extra homes! . . . to make more money for you. But that's just a small part of the story of how Lennox dealers everywhere are getting volume business in residential air conditioning by cashing in on the building boom. Let us tell you more at your convenience.



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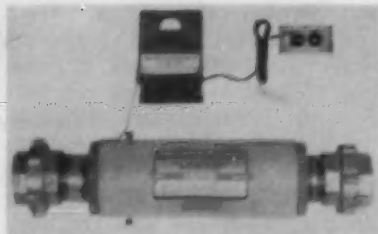
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Heat-X Mufflers Cut Pumping Noises

—KEY NO. F-420—
BREWSTER, N. Y. — Heat-X, Inc. here has introduced a line of mufflers for use in reducing pumping noise in refrigeration or air conditioning systems.
"Easily installed on the discharge line of any refrigeration compressor, the muffler eliminates pulsations and vibrations in the lines," the company said.
"Low cost, simple in design and construction, the mufflers assure complete smoothness of system operation, thereby reducing maintenance cost and prolonging equipment life."



Electric Scale Controls Will Treat Big Volume

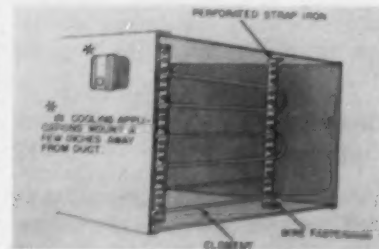
—KEY NO. F-421—
CLEVELAND—Units in 3 and 4-in. sizes to treat large volumes of water electrically for prevention of hard scale formation are available from Aqua Electric Scale Control, Inc., the company announced.
The No. 300 3-in. model will treat up to 300 g.p.m., the 4-in. unit, No. 400, up to 450 g.p.m. In each case controls are housed in a plastic case and the cylinders made of heavy wall plastic tubing with screwed end bushings for pipe connections.



Temprite Adds Heavy-Duty Remote Room Units

—KEY NO. F-422—
BIRMINGHAM, Mich. — Temprite Products Corp. here, manufacturer of liquid cooling devices, has increased the capacity of its line of remote-type coolers and provided for further applications with the addition of two new heavy-duty units.
There are now four models in capacities ranging from 5 to 24 g.p.h., designed for cooling water as well as light oils.
The cooler can be installed in any convenient remote location and piped directly to one or multiple outlets, it was pointed out.
In addition to drinking water

cooling for restaurants, cafeterias, schools, office buildings, factories, etc., the units are recommended for accurate water temperature control in photo and X-ray processing and commercial-industrial applications such as jacket cooling, coolant cooling, and welding electrode cooling.



Packaged Precipitron Offers Simple Care

—KEY NO. F-423—
HYDE PARK, Mass.—A new packaged "Precipitron" (Type PC) electronic air cleaner for commercial and industrial application is available from Westinghouse Electric Corp.
Requiring a space of only 38 in. in the direction of air flow, this unit "incorporates movable washing and adhesive applications that are usually found only in larger units," the company said. "It is designed to answer the increasing demand for a packaged electronic air cleaner with simplified maintenance."
Both the washing and adhesive application cycles are completely controlled and operated from outside the unit. The Precipitron cleaner comes fully enclosed with built-in drain pan, drain connection, and duct flanges for easy installation, and has versatile mounting provisions—ceiling, floor, or platform.

Line Voltage Thermostat Designed by General

—KEY NO. F-424—
GLENDALE, Calif. — A new General Controls line voltage thermostat (T220) has been designed for direct control of unit heaters, circulators, fans, and fans.
In the cooling model it provides direct control of air conditioning, cooling and ventilating, according to the company.
The thermostat is available with or without cooling or heating anticipation.
Contacts are sealed against moisture, dust, and corrosive substances.

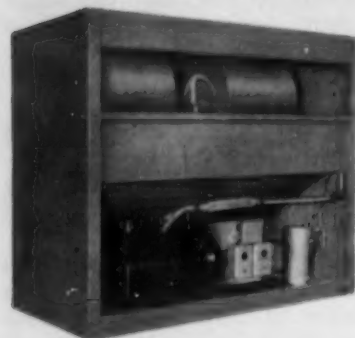


- ◆ Extra-large storage
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 - ◆ Fast hourly recovery
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- Capacities: 5 to 500 g.p.h.
Storage: 2 to 240 gals.
Water coolers for all uses factory-packaged with your condensing unit. Write for literature.

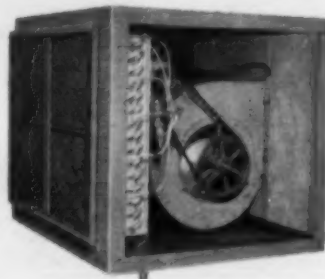
FILTRINE MFG. COMPANY
216 W. PROSPECT ST. • WALDWICK, N. J.



2-3-5-8-10 TON WATERLESS UNITS New air cooled units, easy to install, need no plumbing



When water is short, impure, costly — or where sewer tax is a problem — you can handle the job easily and economically with a Typhoon waterless air-cooled condenser. Units are easy to install and require little or no maintenance... deliver full capacity in hottest weather... give you a powerful selling plus! Round out your line with Typhoon waterless air conditioners—full range of sizes up to the exclusive 10 ton unit.



Superior Typhoon Engineering:

- Centrifugal blower** eliminates wind resistance factor, overloading of fan motor... adaptable to duct work.
- Bigger condensing surface**—more cooling capacity with less electrical input.
- Self-contained or remote installation**—for most advantageous positioning.
- Non-stop performance** even in hottest weather because compressor is never over-loaded.
- Quiet**—slow speed blower with belt-driven, ball-bearing drive cuts noise level.
- Weatherproof design**—all components housed inside cabinet for outdoor installation by refrigeration contractor.

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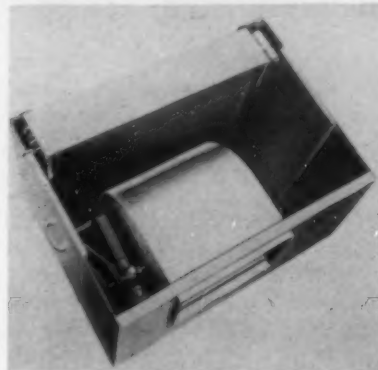
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UsAirco Offers 2-7½ Ton Air-Cooled Condenser Line



—KEY NO. F-429—

MINNEAPOLIS—A line of air-cooled condensers in 2, 3, 5, and 7½-ton capacities, is announced by the United States Air Conditioning Corp.

The units comprise a motor, blower, and condenser coil housed in a weather-proof cabinet. They are designed for remote installation requiring only the connection of two copper lines to the air conditioning unit, one to carry hot refrigerant gas from the compressor and the other to return the condensed liquid to the receiver.

The equipment measures only 39 in. wide by 27 in. high by 28 in. deep, approximately, in the 2-ton model and 70 in. wide by 50 in. high by 30 in. deep in the 7½-ton unit.

Electrical requirements are single-phase, 230 volts for 2, 3, and 5-ton models and three-phase, 220-volt for the 7½-ton equipment. A three-phase unit is also available in the 5-ton capacity unit.



Imperial Tool Cuts Or Constricts Tubing

—KEY NO. F-4212—

CHICAGO—A new tool, which can be used for cutting tubing or for constricting a larger tube to the outside diameter of a smaller one, preparatory to making a solder connection, has been announced by The Imperial Brass Mfg. Co. here.

The tool is used with its standard cutting wheel for cutting tubing. A second wheel, having a rounded contour, is carried in a special recess under the reamer. This wheel is used in place of the cutting wheel for constricting the tubing.

"Soldering a larger tube to a smaller tube—as for example, a ¼-in. o.d. tube to a capillary tube—is greatly facilitated by this tool," the company said.

"The smaller tube is inserted ¼ in. into the larger tube, and the constricting roller is used to roll a groove in the larger tube about ½ in. from the end of the tube.

"The rolling is continued until the constriction contacts the smaller tube. The joint is now ready for soldering."

Lima Makes Round Step-Down Ceiling Diffuser

—KEY NO. F-4214—

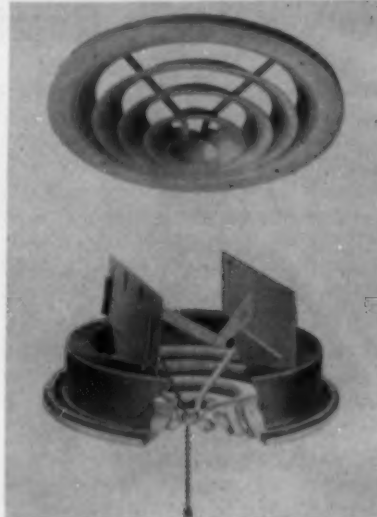
LIMA, Ohio—A new round step-down type ceiling diffuser for heating and cooling is now being manufactured by The Lima Register Co.

The new unit has Lima-engineered curved contour step-down rings without straight edge. This assures maximum free area and efficient distribution of supply air in all directions at correct angle to eliminate ceiling streaks and induce re-circulation of room air, the company claims.

The Lima round ceiling diffuser damper assembly has built-in mechanical spring-loaded butterfly dampers which provide full center opening for air delivery through the center of the diffuser, and full air shut-off.

Volume control is in the damper assembly for balancing the system. When damper is not used, an installation ring is available.

Like the Lima square design ceiling diffuser, the new round ceiling



diffuser has a light beige finish. A thick sponge rubber gasket provides a tight seal against air leakage. The new Series 65 is available in seven sizes from 6 in. to 22 in.

LaCrosse Introduces Beverage Dispenser-Ice Maker

—KEY NO. F-4210—

LACROSSE, Wis.—Recently introduced by LaCrosse Cooler Co. here was "Bev Ice 20" selective vending machine.

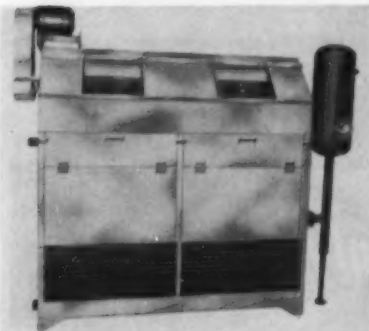
A combination coin-operated beverage dispenser and ice cube maker, this unit has a 16-tray ice cube maker claimed to be capable of producing 25 to 28 lbs. of cubes every four hours. It can store 100 lbs. in its refrigerated stainless steel bin. The storage bin is located at reach-in height and protected by a sliding plastic cover, the firm said.

Approximately 50 bottles can be carried in dispensing racks and



84 in the pre-cooling section, according to the company.

Industrial Has Floor-Type Space Cooler



—KEY NO. F-4211—

CHICAGO—A new floor type space cooler for delivering a large volume of refrigerated air where

required was offered here recently by Industrial Mfg. & Engineering Co., the firm announced.

It can be used in meat packing plants, cold storage warehouses, or wherever poultry, dairy products, fish, or other perishables are processed, stored, or frozen, the company said.

Dubbed "Imeco," the cooler consists of a cooling coil made of 1 in. O.D. condenser tubing with hot dip galvanized plate fins, galvanized sheet steel housing, fan, motor and drive, and, if necessary, a surge drum with float valve. It is available with three, four, or six fins per in. to fit various suction temperatures, it was pointed out.



Pipe Pusher Eliminates Trenching, Damage

—KEY NO. F-4213—

DENVER—To eliminate trenching and possible damage, Mercury Hydraulics, Inc. here recently developed a powered hydraulic "Speed-Thru" pipe pusher.

Pipe gripped in a powered carriage penetrates the earth with a continuous 21-in. thrust without change of speed. Pipe can also be pulled through earth rapidly by reversing the operation, the company stated.

Operating two controls, one man can use the unit. The company claims Speed-Thru averages 4 f.p.m. with a push of 75 ft. under a road completed in 18-20 minutes.

Dunkill ICE BINS

A model for every need



Capacities: Holds 200 to 4000 lbs. of ice.
Insulation: 2" of solid vegetable cork board.
Exterior: Front, top, sides and back 20 gauge stainless steel.

Interior: 20 gauge stainless steel.
Bin Top: Reinforced with ½" angular steel frame.
Circuit Breaker: All openings framed with ½" panylts.

Write for descriptive literature.

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BEVERAGE COOLERS AND INSTANTANEOUS DRAFT BEER COOLERS.
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THE ONLY PACKAGE CHILLERS WITH THESE "EXTRAS"

All Non-Ferrous Water Passages
Capacity Controller
Inner-Fin Construction

CHILLER **PLUS...** **CONDENSER**

Exclusive Inner-Fin design. All water passages of non-ferrous construction. Single pass, eliminating any oil trapping problem. Insulated with rock cork covered with sheet metal casing.

Combination Superheater-HEAT INTERCHANGER
Provides increased sub-cooling, thereby improving expansion valve performance and permitting full use of entire evaporator surface. This unit is also the basic component of the capacity controller.

Patented Inner-Fin construction. All non-ferrous water passages eliminate any corrosion problem. Copper inner-fins in refrigerant passages greatly increase heat transfer efficiency.

PATENTED INNER-FIN CONSTRUCTION of refrigerant passages means 'PC' Chillers provide greater cooling capacity with much less bulk. Non-Ferrous construction of all water passages eliminates any corrosion problem.

Capacity Control, available on 2 HP through 15 HP models for use with hermetic and semi-hermetic units, eliminates short-cycling during light load conditions and maintains constant suction pressure.

Entirely self-contained, 'PC' units are delivered completely wired, ready to install. Available in 2 HP through 100 HP models.

Catalog No. 1044 Containing Complete Specifications FREE on Request.

HEAT-X, Inc.
BREWSTER • NEW YORK

'Brass Rail' Is Unusual Feature of New Koldaire Quarters In Fort Worth

Sales Floor, Offices Provided with Air Conditioning

FORT WORTH, Texas—New quarters which have been occupied by Koldaire Supply Co., Inc., parts wholesaler here, not only provide the firm with more space but permit increased efficiency of operation.

Still located in the downtown area, the firm now has its warehouse under one roof along with the sales floor and offices.

Until this move was made, Koldaire's warehouse was at a separate location, which is a less efficient setup, point out J. Thomas Threadgill and Karl Vetter, who direct the firm's operations as president and vice president, respectively. Third principal in the firm is Dewey Wright.

More Than Half of Bldg. Used for Warehouse

Size of the present building occupied by Koldaire is 100 by 100 ft. More than half of this is devoted to warehouse space which extends along side and back of the firm's sales and office area.

Sales area takes up approximately 1,500 sq. ft. of space. A serve-self arrangement is employed, the counter being at one side and extending back at right angle to the entrance. This makes all the displays and stock

readily available for customer inspection and selection.

There's a special feature of the counter which is deserving of note: a "brass rail."

"It's surprising how restful it is to put one foot on the rail while standing at the counter, or even while sitting on the stools provided," Threadgill says.

The "brass rail" which Threadgill devised is actually made of hard copper tubing and fittings firmly attached to the counter which has special backing to support the weight.

Soft Drinks, Coffee Available at 'Bar'

If the "brass rail" creates a desire on the part of customers to "heist a few," drinks are readily available: pop or coffee. Vending machines are provided for soft drinks, and there's a coffee "bar" on the sales floor just beyond the counter.

The coffee bar is operated on a serve-self basis, but if a customer happens to be lucky, he might find the coffee being served up by attractive Margaret Epps, secretary-treasurer of the firm.

Four offices are provided in the section of the building behind the sales counter, and



"BRASS RAIL" on counter in new quarters of Koldaire Supply, Fort Worth parts wholesaler is a special feature for customers. Behind the counter here are (l. to r.) Jack Reams, Karl Vetter, J. T. Threadgill, and Bill Hill waiting on customers Milton Terry, Robert Chester, Gene Groom, and Jerry W. Sawyer.



SALES floor and offices of Koldaire Supply are cooled by 5-ton Governair package unit. Thermostat setting is checked by Karl Vetter, vice president, and J. T. Threadgill, president, of the parts wholesale firm.

there's also a conference room.

Sales floor and offices are air conditioned by a 5-ton Governair package unit. This is installed in the warehouse section directly behind the sales floor area, and is connected to ductwork supplying the offices and sales floor.

Employees Did Most Of Remodeling

One of the most unusual aspects of the new Koldaire quarters is that most of the work of remodeling the building before occupancy was done by members of the firm themselves with the aid of wives and husbands, Threadgill says.

This included island display racks, and meant working nights and weekends during what is normally the busiest season of the year for the firm.

The Koldaire "gang" is justifiably proud of the results of their efforts, but one can detect a "never again" attitude, too.

Detroit Controls Names Paul J. Steigerwald

DETROIT—E. J. Doucet, vice president and general manager of sales of Detroit Controls Corp., announces the appointment of Paul J. Steigerwald as territory representative in the city of Cleveland.

Steigerwald has been in the employ of Detroit Controls for the past year in the east central regional office in Cleveland. His new responsibilities will entail the representation of the entire line of Detroit equipment.

AIRO stands for

Fast, dependable, world-wide service. Refrigeration and Air Conditioning parts and supplies. Write for current Catalog

AIRO SUPPLY CO.
2732 N. Ashland Ave., Chicago 14, Ill.

Hajoca Sells Outlets In Jacksonville, Tampa

PHILADELPHIA — Hajoca Corp., large east coast wholesaling chain, has sold its outlets in Jacksonville and Tampa, Fla., "lock, stock, and barrel" to the Noland Co., independent plumbing equipment distributor with offices in Newport News, Va.

J. W. St. Clair, Hajoca president, said the sale was the first in a plan to sell 10 branches.

"As of now, it doesn't look as though we will sell any of the other units as going businesses," he said. "But we will sell the inventories and real property."

Hajoca distributes refrigeration and air conditioning parts and equipment as well as plumbing equipment.

Morrissey Replaces McClain In Wolverine Field Post

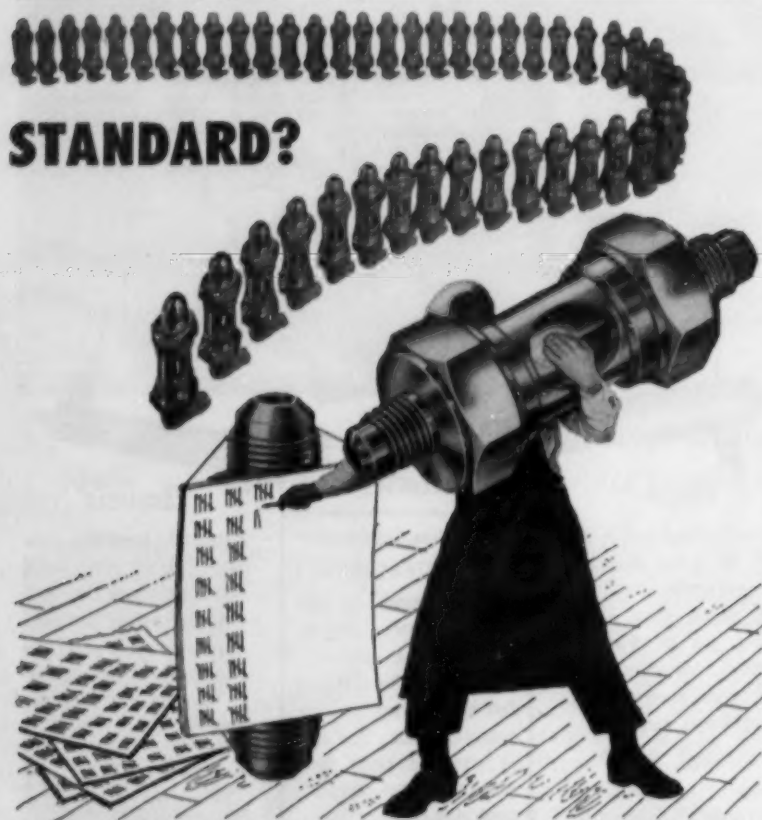
DETROIT—J. H. Smith, east-central district sales manager for Wolverine Tube, Div. of

Calumet & Hecla, Inc., has announced the appointment of William R. Morrissey as sales representative in Pittsburgh and surrounding area.

He replaces James McClain. Formerly sales representative of Wolverine Tube in Chicago, Morrissey will headquarter in Pittsburgh.



W. Morrissey



STANDARD?

YES, ORIGINAL EQUIPMENT STANDARD REMCO E-Z-SEE LIQUID INDICATOR

Remco's E-Z-SEE Liquid Indicator is Original Equipment Standard to dozens of manufacturers of automotive, residential, commercial and industrial air conditioning and refrigeration equipment.

The E-Z-SEE, guaranteed leak-proof, is the lowest price liquid indicator on the market. Only Remco gives your choice of spring-type or low cost hermetically-sealed indicators, in both brass and lower-cost cadmium plated steel.

These double-port, easy-to-see-thru units may also be had as flow indicators with flaps which respond instantly to flow variation. Remco E-Z-SEE's range in size from 1/4-inch through 2 1/2-inch O.D., and are available with flare or sweat connectors. For any size or application, E-Z-SEE is standard for original equipment.

● ATTENTION, WHOLESALERS! Write today for Remco's O/E Standard Book for replacement parts your customers need.

STANDARD

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Marsh Presents...

The one and only
water valve
for both
F-12 and F-22



Yes, you can adjust this new water regulating valve from 60 to 270 pounds by simply twisting that knurled cup at the bottom... so now you have one valve that will function equally well on either Freon 12 or Freon 22.

It's new and better in every way: Small and Compact, but with plenty of capacity, smooth modulation, positive operation, excellent flow characteristics. Valve may be manually flushed after installation to remove dirt and grit from line.

Quality construction throughout: Monel seat beads minimize wire drawing and prolong life. Direct acting bellows is leak proof.

Write for bulletin pointing out other brand new features.

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WATER REGULATING VALVES • SOLENOID VALVES • GAUGES • HEATING SPECIALTIES

Buy from
your wholesaler



Who will be the top residential air conditioning contractors tomorrow?

Your key contractors today may not be the most important contractors tomorrow

Today's residential air conditioning market is an ever-changing scene. Indications are that next year many new faces will be among your most important outlets.

As an example, look at the Wichita market. The NEWS conducted a survey in 1954 and again in 1955 as part of a continuing study in major air conditioning markets across the nation. The change in Wichita was startling: Of the five contractors who made the most installations in 1955, three were *not* among the top five of 1954! One contractor—today's third ranking—made no installations in 1954. Together, these five contractors account for 65% of the residential air condi-

tioning systems sold and installed in Wichita in 1955.

Despite this rapidly changing market situation—each one of these top contractors reads the NEWS!

As you plan tomorrow's sales, it's hard to identify the faces of the most important contractors. But, when you advertise in the NEWS, you can be sure that top dealers and contractors will be familiar with your products, your policies, your sales and promotion programs.

For the contractor who is considering air conditioning installations for the first time, the NEWS is a must. It is the only place he can turn for the kind of information—the kind of editorial content that can teach him the vital facts that will help him make dollars in this fast-growing industry.

The NEWS is vital, too, to the contractor who has only recently added residential air conditioning systems to his line. He must know the latest trends, the latest products and installation hints that can help him become an important factor in the sale of residential air conditioning systems.

And, for the aggressive leader—the contractor who is today No. 1 in his marketing area, weekly reference to the NEWS is a Monday morning routine. He cannot do without it!

For a solid sales foundation tomorrow, advertise now in the NEWS. Do the 1st job where the 1st job is being done!

**AIR CONDITIONING
& REFRIGERATION**

The Newspaper of the Industry



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The Newspaper That Carries More Advertising By Far Than Any Other Publication In The Field.

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CHICAGO, 134 S. LaSalle St., Franklin 2-8093, Allen Schildhammer.
DETROIT, 450 West Fort St., Woodward 2-0924, Joe Sullivan.

For more information about products advertised on this page use Information Center, page 36.

Attractive Showroom, Product Demonstrations, Replacement Parts, Service Mindedness Help Boost Distributor's Sales



S. E. TEAFF, Sr., (right), who's been in the refrigeration business for 30 years, has been joined in his Houston firm by sons S. E. Jr., and Wesley.



EXTENSIVE shop facilities make refinishing and repair of used equipment an efficient operation.

HOUSTON, Texas—Steady increase in customers and sales has been chalked up by S. E. Teaff Refrigeration here since it moved into its modern new building here in January, 1955.

75% Jump In Drop-In Customers In Year

"At the end of November, 1955, sales were up 45.1% over 1954, and there's been a 75% jump in drop-in customers," declares Wesley W. Teaff. "Sales so far this year are on the increase, too."

Virtually all of this increased business is attributed by Teaff

COMPLETE repair stock of compressors, motors, and other vital parts is maintained by Teaff organization, which places great importance on good service. Here George Copeland (left), service manager, checks with Cecil Shearer on a compressor needed for replacement.



to the attractive new building, although its location does help considerably.

"Formerly we had been located right downtown, although we're still fairly close to the downtown area, we're now on a main street with adequate park-

ing facilities," he points out.

The firm, which is a distributor of Friedrich commercial refrigerators and also handles the company's room air conditioners, was founded by S. E. Teaff, Sr., who started in the refrigeration business 30 years ago and is the oldest member of the Friedrich sales force.

Until recently the elder Teaff also served on the Friedrich board of directors. His post there is now held by son Wesley Teaff, who joined his father's organization full time in 1946 after service in the Navy. Another son, S. E. Teaff, Jr., is also active in the firm.

The new building of the company has 70-ft. frontage and runs 125 ft. deep. Full frontage is devoted to the showroom, which is 40-ft. deep.

Full Length Windows Make Effective Display

Entire front of the building as well as some distance on each side is constructed of full-length show windows running from floor to ceiling. This makes for most effective display, especially at night, as the accompanying photo shows.

The full-length windows, combined with the showroom's slim-line lighting, terrazzo floor,



FULL-LENGTH windows and dramatic lighting in new building of S. E. Teaff Refrigeration, Houston Texas, have contributed to sharp increase in sales floor traffic for veteran firm.

acoustical tile, and offices lined with Philippine mahogany, tempt many a passerby to stop in. And when they do come in they find the showroom and offices are air conditioned by a 11-ton system.

In the showroom the prospect can get actual demonstrations of equipment operation. Six pairs of electrical outlets are provided in the showroom floor at logical locations. One outlet of each pair is 115 volts; the other 230 volts. Plugs are also provided around the showroom walls for both 115 and 230 volts.

Operating Room Unit For Particular Clients

"Because room unit customers are getting more and more particular," Wesley Teaff explains, "we have an operating window unit mounted in the wall of the showroom, extending through into the warehouse section behind. People can see how the unit looks installed, and we can demonstrate how quietly it operates."

Offices have been limited to three. One is shared by S. E. Teaff, Sr., and his son, Wesley, an accordion-type folding divider being provided to make two separate offices if desired. Second office, occupied by M. C. Bennett, accountant, also houses the company's current files, complete records being kept handy here for three years. (Older files are stored in attic space.)

Third office, which is used by George Copeland, service manager and dispatcher, also doubles as a storeroom for compressors, motors, and other parts.

"We're service minded," comments Wesley Teaff. "We maintain in stock a replacement compressor of every size up to 7½ hp. for all the equipment we sell," he says. "This also goes for motors."

A set of disappearing stairs in this office leads to attic space over the office area of the building for storage of old records, copper tubing, and a number of other items.

(Concluded on next page)

FOSTER

ORIGINATOR AND OLDEST CONTINUOUS MANUFACTURER OF REFRIGERATORS AND FREEZERS

Designed and engineered for heavy duty performance

FOSTER BUILDS OVER 200 MODELS OF MATCHED PRODUCTS ONLY ONE TOP QUALITY LINE! NO 2ND OR 3RD LINES!

Whether it's for a hotel, restaurant, school, hospital, or any institutional user — there's a model designed specifically to fit individual needs.

Foster has had long and successful experience in building welded all-aluminum refrigerators and freezers for installations all over the world. They have met every in-the-field test for strength, durability and long life.

Thousands upon thousands of satisfied users know that Foster meets the most exacting specifications, the most critical demands of hard, day to day use, year after year.

And most important—they're priced low and right!

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NATIONWIDE FACTORY TRAINED REGIONAL SALES MANAGERS FOR SALES AND SERVICE.

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Visit our Booth No. A-36 at Restaurant Show, Chicago.

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UPRIGHT FREEZERS

TWO TEMPS

UNDERCOUNTERS

BEVERAGE COOLERS

WHOLESALE ONLY

We sell YOU NOT your customers

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"For quick delivery of electric motors, I always call **DELCO PRODUCTS**. They have the most complete line for our business, too!"

GM GENERAL MOTORS **DELCO**

DELCO Electric MOTORS

DELCO PRODUCTS, DIVISION OF GENERAL MOTORS, DAYTON, OHIO

Proved best by Performance!

Sales Help --

(Concluded from preceding page)

Intercom Connects Offices, Shop

Incidentally, all the offices and shop are provided with an intercom system.

Extensive shop and warehouse area are provided in the rear of the building. At the truck entrance to the shop a 5 x 15-ft. steel platform on a hydraulic hoist is provided to facilitate loading and unloading merchandise. The platform is flush with the floor.

To facilitate night deliveries, a key-operated electric switch is located outside the building beside the truck entrance. A driver arriving late merely has to insert the key in the switch to have the 16-ft. high motor-driven garage-type door open so that he can park his truck inside overnight.

Shop area includes an 18 x 10 x 11-ft. booth for steam cleaning and spray painting, a number of power tools, and a well equipped work bench which is wired for 115 and 230 volts single and three phase.

Good Shop Facilities Found Important

"Good shop facilities are important because a good part of our business is in used equipment," Wesley Teaff explains.

A shower for employees is provided, as are individual clothes lockers. Service and shop men wear uniforms.

Nine trucks are used by the firm. Five are service trucks with carry-all bodies, three are stake body trucks, and one is a six-wheeler platform job.

Although a considerable amount of warehouse space is provided in the new Teaff building, the company also has another warehouse in Houston.

Food Stores In 5-10 Yrs. Theme of NARGUS Meeting In Los Angeles June 10-14

CHICAGO — Demonstrations and discussions designed to answer the question, "What will food stores be like in 5 or 10 years?" have been planned as a part of the 1956 convention of the National Association of Retail Grocers of the United States.

The convention will be held June 10-14 at the Shrine Auditorium and Exhibition Hall in Los Angeles.

There will also be discussions and demonstrations of successful departmental operations, including meat, produce, frozen foods, grocery, and non-food departments.

Last year's successful innovation, the "Early Bird's Sessions," will be repeated at the 1956 convention.

Leading retailers, who have been outstandingly successful in their fields, will open each morning's session (Monday through Thursday) with concise discussions of practical and unusual ideas that have paid off for them in increased volume and profits.

Subjects will include value of mechanical equipment and financing of food stores, among others.

A mammoth food industries exhibition on both levels of the Shrine Exhibition Hall will present a display of food and grocery products as well as equipment.

In addition to the annual banquet at the Hollywood Palladium, the President's party and entertainment at the Shrine Auditorium, and supper and tour of Disneyland, retailers and their families will be feted at luncheons in Hollywood's famous hotels.

Air tours from Los Angeles to Hawaii will give NARGUS groups a luxury post-convention trip at "budget" prices.

Reservations for the convention and for hotel accommodations, as well as reservations for post-convention Hawaiian tours, should be made through headquarters office of the National Association of Retail Grocers at 360 N. Michigan Ave., Chicago 1, Ill.



PICTURED HERE is a service station operator at Bowers Battery and Spark Plug Co., Reading, Pa., receiving instructions on how to handle refrigerated automobile batteries.

Wet Storage Batteries Kept In Upright Freezers Hold 90% Capacity a Full Year

READING, Pa. — Using upright freezers to keep wet storage batteries fully charged in retail stocks is being suggested to its dealers by Bowers Battery and Spark Plug Co. here. Freezers are already being installed in service stations and garages throughout the country, the company said.

Saves Handling Trouble, Costly Service at Sale

Holding the batteries in cold storage, Bowers reports, will save dealers a good deal of trouble in handling and costly service at the time of sale. It will also assure customer satisfaction since the process virtually guarantees that every battery sold is fully charged when installed.

Batteries stored in a freezer at -20° F. have been found to lose only about 10% of their storage capacity over a period of one year. The low temperature minimizes harmful chemical sulfation on the plates and practically halts self-discharge.

On the other hand, loss of capacity at normal temperatures is quite rapid and highly detrimental. At 70° to 80° F., a battery loses 100% of capacity by self-discharge in less than a year, and can no longer be re-

stored to usable condition.

A fully charged 1.260 specific gravity battery, for instance, will self-discharge at the rate of .001 specific gravity per day. This battery would thus discharge to 1.230 specific gravity in 30 days.

After this amount of normal loss, the dealer must either recharge the battery or install it in a partially discharged condition.

Cold storage during the summer months, Bowers indicated, should especially save dealers a lot of headaches since batteries self-discharge at a much higher-than-average rate when exposed to the hot sun or plus 80° F. heat.

Continuous exposure to such temperatures is said to leave a stock battery completely dead in 90 days.

Eliminates \$2 Extra Dry Charging Cost

This method of preserving wet storage batteries eliminates the \$1.50 to \$2 extra dry charging cost that is included in the dealer price of every dry charged battery. There is no separate acid to handle, since the electrolyte is already in the wet battery.

Furthermore, a freshly-filled

dry charged battery may have less than 75% capacity when installed. It must then depend on the car generator to bring it up to a fully charged state. And sometimes it may never become fully charged if the car is driven a low mileage weekly.

The freezers used in the storage process will hold 14 different size batteries each.

As suggested by Bowers, the units should prove particularly useful for storing slow moving batteries or for meeting a sudden quantity demand.

For example, the new 12-volt batteries for 1955 and 1956 automobiles are not naturally moving fast. But they must be kept in stock for the time when they are needed.

Holding In Cold Storage Keeps Batteries Fresh

"By holding batteries in cold storage," said Clarence P. Bowers, president of the company, "dealers will be able to keep them factory-fresh and fully charged. And, when they are sold, the batteries on an average will last the motorist several years longer than ordinarily."

"When a customer buys a new battery, he is paying for and is entitled to receive one which is fully charged," he continued.

NOLIN

Leads the Field!

New Dry Beverage Cooler

- LEADS IN CAPACITY
- LEADS IN QUALITY
- LEADS IN PERFORMANCE
- LOWEST IN PRICE

NOLIN MANUFACTURING COMPANY
1100 LLOYD ST. PH. LD. ST.
MONTGOMERY, ALABAMA

U.L. & A.S.M.E. WATER-COOLED CONDENSERS 1/2 TON TO 15 TONS

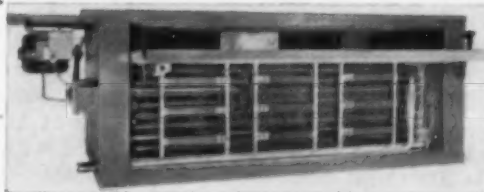
and LIQUID RECEIVERS for EVERY REQUIREMENT

STANDARD REFRIGERATION CO.
332 S. Mayne, Dept. C
Chicago 12, Ill.

White for our **NEW** Catalog

NEW Completely Automatic KRACK ELECTRIC DEFROST UNIT KOOLERS

For Sharp Freezers, Locker Systems, Ice Cream Hardening Rooms, etc.



Exclusively Patented Models for Freon, Ammonia and Brine

Eliminates Costly Installation—Saves Time, Space, Money!

Complete defrosting is automatically done with electrically heated air circulated within the unit while the door is closed. Sufficient heat is immediately available at all times regardless of amount of ice accumulation. Internally wired at factory. Krack engineered for many years of dependable performance.

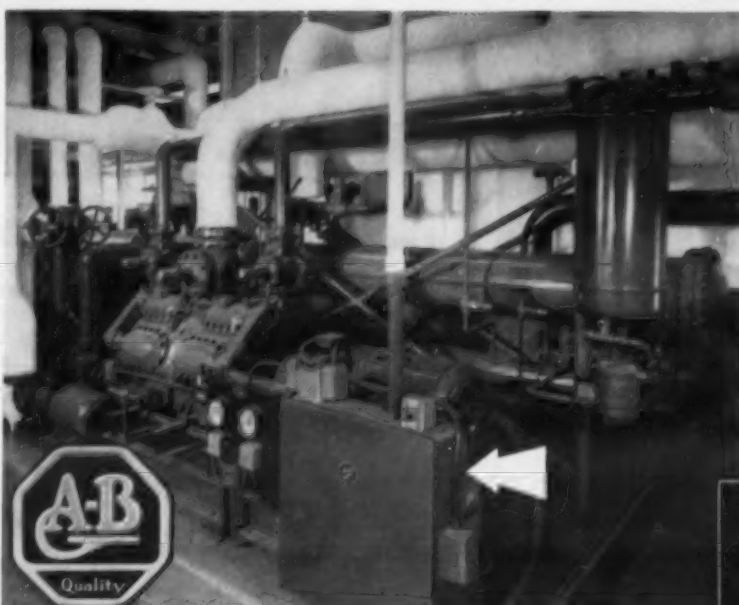


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Write for New Bulletin ED-1055 Today!

Pioneers in Refrigeration & Air Conditioning Equipment Since 1931

ALLEN-BRADLEY BULLETIN 736 PART WINDING STARTERS for Large Compressor Motors



The Sign of QUALITY MOTOR CONTROL

BULLETIN 736 two-step part winding starters in ratings up to 200 hp, 220 v; 400 hp, 440-550 v. Three-step starters in ratings up to 200 hp, 220-440-550 v.

Here is another popular Allen-Bradley motor starter . . . the Bulletin 736 part winding starter for large squirrel cage motors. It has the same simple contactors that have made Allen-Bradley starters "tops" in reliability. Only ONE MOVING PART . . . no pivots, pins, or bearings to corrode and stick—no jumpers to break. The double break, silver alloy contacts never need maintenance, and the thermal overload relays "hold" their accuracy. You are out in front when you specify Allen-Bradley QUALITY motor controls.

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1313 S. First St., Milwaukee 4, Wis.

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ALLEN-BRADLEY
SOLENOID MOTOR CONTROL
QUALITY

Refrigeration Problems And Their Solution

By Paul Reed

For Service and Installation Engineers



Spring Service on Room Units (5)

TROUBLE CHART, ROOM UNITS

(AIR COOLED)

"My room cooler won't run."
Attachment cord pulled.
Line switch off.
Fuses removed or blown.
User controls not properly operated.
(Check valves before starting unit.)
"The fan runs, but the air isn't cold."

Loose or open connection.
Faulty relay.
Faulty starting capacitor.
Thermostat set too high.
Thermostat stuck open.
Low voltage.
Motor-compressor stuck.

"My Room Cooler starts and stops."
Low voltage.
Condenser dirty.
Condenser fan not running.
Condenser fan motor running underspeed.
Running capacitor faulty.
Motor-compressor stuck.
Motor protector faulty.
Thermostat faulty.

"Yes, the motor runs, but it isn't cool enough."

Low refrigerant charge.
Dirty air filter.
Restricted air circulation.
Cooling fan motor not running.
Cooling fan motor running too slowly.
Fan blades bent.
Fan blades dirty.
Fan improperly located.
Excessive humidity.
Excessive load—additional appliances, people, etc.

Low voltage.
Air leakage—by-passing.
Stoppage or restriction of refrigerant flow.
Motor-compressor inefficient.
Oil in evaporator.

"My room cooler is noisy."
Noisy compressor, bad bearings, etc.
Compressor slugging oil or liquid.
Restricted circulation of cooling air.

Compressor cold at start.
Fans striking housing.
Fans out of balance.
Fan blades bent.
Fan improperly placed in housing. (Whistling sound.)
Fan motor noisy.
Bearings.
End-play.
Loose in bracket or mounting.
Loose tubing or parts.
Loose sheet metal housing.
Unit improperly installed.
Hold-down bolts.
Improperly balanced.
Mounting loose.

Harmonics.
User over-sensitive to noise. (Be patient on noise complaints—noise is relative as to people, day-and-night, etc.)

"I get a shock when I touch my room air conditioner."

Worn insulation.
Loose wires.
Wet connections.
May be static electricity; air

conditioner not at fault. (Every room air conditioner should have a ground wire. Install one or urge user to have it done.)

"Water runs from my room air conditioner, down the wall and on the floor."

Stoppage of drain line (if used).

Lint, dust, paper, etc.
Slinger not turning.
Loose on shaft.
Out of position.
Sump stoppage.

Water from cooling coil not getting to drain pan—dirt, lint, etc.

"There is not much cold air coming out of my room cooler."

Dirty filter.
Coil iced up.
Coil partially stopped. (Dirt, lint, paper.)
Fans slipping on shaft.
Fans dirty.
Fan blades bent.
Fan motor running under-speed.

Low voltage.
Light bearings.
Air leakage. (Open seams, etc., in housings.)

CHOOSING THE RIGHT SIZE OF ROOM AIR CONDITIONER

As discussed in the Feb. 20 issue, 1 hp. can develop about 1 ton of cooling at evaporator temperatures of about 40° to 45° F. This does not necessarily mean that a 1-hp. window unit will produce 1 ton, that a ¾-hp. unit will produce ¾ ton, nor that a ½-hp. unit will produce ½ ton. In fact, it is not likely that any of them will.

There is a great deal of confusion and in some cases, questionable advertising, on this point. The public has come to believe that a 1-hp. unit is a 1-ton unit, a ¾-hp. unit is a ¾-ton unit, etc. True capacities vary considerably. One manufacturer's ¾-hp. unit may actually have more capacity than another's 1-hp. unit.

It would be far better if we quit talking about horsepower, and talk about B.t.u. per hour, or at least about tons; but not horsepower.

All reputable manufacturers furnish the rating of their units in B.t.u. per hour capacity, based on actual tests conducted according to the ASRE Standard Method of Rating. This standard is based on certain conditions:

1. Air to the condenser 95° dry bulb, 75° wet bulb.
2. Cooled air in the room and returned to the inlet of the air conditioner, 80° dry bulb, 67° wet bulb, relative humidity 50%.
3. Barometric pressure 29.921 in. Hg.

Air-cooled air conditioners will operate at higher outside air temperatures than 95° DB and 75° WB. At rated voltage, they should be able to start and not overheat with the outside air as high as 115° DB, 80° WB, and with an inside temperature of 95° DB, 75° WB, but not at their rated capacity.

TOO OFTEN THUS:

Unfortunately, there have been too many room air conditioners sold without an adequate survey of the user's needs, nor without consideration of the conditions under which the room air conditioner must operate. There have been too many room air conditioners sold on as

(Continued on next page)



Retard scale deposits economically with "VIRGINIA'S" new scale inhibitor

"Virginia's" new Water Treatment and Scale Inhibitor is a nontoxic blend of special polyphosphates having exceptionally slow—and controlled—solubility in water. There is no need for installing expensive feeder devices with "Virginia" Water Treatment and Scale Inhibitor—just add the specified amount to the sump pump reservoir. One 6-lb. treatment will sustain protection against scale formation for about 3 months in a 30-ton unit with average water hardness.

"Virginia" Water Treatment and Scale Inhibitor holds the scale-forming impurities naturally found in water either in solution or in a suspended state, thus inhibiting the formation of solid deposits on the wetted surfaces of cooling coils and pipes. This new "Virginia" Water Treatment product provides you with the *easiest* and most *economical* way to protect your valuable equipment and maintain maximum plant efficiency. Supplied in 6-lb. cartons and 50-lb.

drums. Order "Virginia" Water Treatment and Scale Inhibitor from your wholesaler or write Refrigeration Division, VIRGINIA SMELTING CO., 135 Jefferson St., West Norfolk, Va.



Other new Virginia Water Treatment Chemicals include Scale Remover, Algae-Cides No. 1 and No. 2 and Ice Machine Cleaner.



ESOTOO • KINETIC CHEMICAL'S "FREON" REFRIGERANTS
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE • KWIKWRAP
SUNISO REFRIGERATION OILS • WATER TREATMENT CHEMICALS
Available in Canada and many other countries

For more information about products advertised on this page use Information Center, page 36.

Room Unit Servicing--

(Continued from preceding page)

little information, as given in the following conversation:

Prospect: "I'd like to see a window unit for my living room."

Salesman: "What size room do you have?"

Prospect: "I'm not sure; about 15 by 20, I'd say."

Salesman: "Well, that would take a 3/4-hp. unit."

There was no consideration of what direction the room faced, how much window space there was, whether there were awnings, what the wall construction was, whether there was any wall or ceiling insulation, whether the room was on the first or second floor, whether there was a basement, how many people would customarily be in the room, and how many would be smokers, what electrical appliances or lights would be on, and other factors that would affect the selection of the size unit to use.

Most manufacturers will provide their dealers with instructions on how to make a proper survey on which to select the unit. The Air-Conditioning & Refrigeration Institute, an association of manufacturers to which most manufacturers of room air conditioners belong, can supply a pamphlet and estimate forms on selection of room air conditioners.

The Refrigeration Service Engineers Society have full instructions in their Service Manual and will furnish you estimate forms based on the ARI forms.

The dealer can save himself a lot of headaches and his customer a lot of trouble, if he will make an adequate on-the-job

survey of the room to be conditioned, before he sells a room air conditioner.

CHECK PROSPECT'S WIRING

Although it has been referred to several times in this column, the prospect's electrical wiring should be checked to determine, in advance, if a new circuit will have to be run, for this may be entirely overlooked by the prospect, who may not realize that he probably will not be able to merely plug the air conditioning unit into the nearest electrical outlet.

He may get a rude shock and the dealer a big beef if the prospect is later faced with the need of spending another \$150 or more to run another circuit just because of his new room air conditioner.

Next, how to estimate the capacity of a room air conditioner.

Bush Mfg. Appoints Edwin A. Carell

WEST HARTFORD, Conn.—Bush Mfg. Co. has announced appointment of Edwin A. Carell to handle application engineering on specialized heat transfer products such as aircraft heat exchangers and oil coolers.



A graduate of Syracuse university with a degree in mechanical engineering, he previously held positions with Walter Kidde Mfg. Co., Squier Signal Laboratories, and Republic Aviation Corp.

Herman Leeds Named by RAM Air Conditioning

BROOKLYN—Herman Leeds recently was named advertising and sales promotion manager for RAM Air Conditioning Corp. here, it was reported.

Leeds formerly was sales supervisor at the Albany and Newburgh, N. Y. branches of Admiral Distributors, metropolitan division.

RAM is an air conditioning retail specialist firm.

Acme Electric Elects W. E. Wilson President

CUBA, N. Y.—Two top management promotions were announced here recently by Acme Electric Corp.



James A. Comstock was elected board chairman, William E. Wilson president.

In his 26 years with the company, Comstock progressed from chief engineer to vice president to president, according to the announcement.

Wilson joined the firm as sales manager in 1945. He has been vice president in charge of sales and, as executive vice president, he was responsible for expanding the organization's product line, supervising engineering, production, and sales of miniature pulse transformers and self-contained power supplies for automatic computing equipment, it was added.

An electrical engineering graduate of Armour Institute of Technology, Wilson followed with business administration studies. His sales work began with Jefferson Electric Co., Chicago. He served as transformer section chief, Radio & Radar Div., War Production Board during World War II.

3 To Take Key Posts In New Redmond Plant

OWOSSO, Mich.—Three men now holding positions of responsibility with the Redmond Co., Inc., manufacturer of fractional horsepower electric motors, will take over key manufacturing positions in the new plant Redmond is now building in Angola, Ind., reports R. E. Drury, director of manufacturing of the Redmond Co.

Annas Laurent, manager of the Special Products Div., will be plant superintendent. The Production Control Supervisor will be Daniel Murphy, who has been material control supervisor at Redmond's plant in Jacksonville, Ark. John Tomancik, production engineer at Redmond's home plant in Owosso, will be plant engineer for the Angola Plant.

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plug-in thermostat for room coolers



Sell thermostatic control with every room cooler and make over \$7 plus-profit on every sale!

More sales, more profits in room conditioners with the Honeywell TA42M, finest thermostat of its kind. Only needs plugging in! Keeps room comfort constant—turns air conditioner on and off automatically as room temperature demands. Ends overcooling, cuts power costs; unit operates only when it's needed. Quickly installed; no wiring necessary.

Honeywell Room Cooler Thermostats list for as little as \$24.20. See your wholesaler—or write Honeywell, Dept. AN-4-76, Minneapolis 8, Minn.

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EDWARDS

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ENGINEERING CORP. POMPTON PLAINS, NEW JERSEY



A TYPICAL CONFIGURATION—EFFICIENT, COMPACT, DESIGN

Servicing Automobile Air Conditioners

BY C. DALE MERICLE

This is the fourth instalment describing the air conditioning system installed in Lincoln and Mercury cars.

Makes previously discussed have included A.R.A., Frigikar, Automotive Air Conditioning, Pivot, Novi, Oldsmobile, Buick, Pontiac, Chevrolet, Ford, Nash, Mark IV, and Mobil-Aire.

LINCOLN-MERCURY (4)

Lincoln-Mercury Div.
Ford Motor Co.
Detroit 32, Mich.

Wiring

During 1955 production an automatic fast-idle throttle control was released for Lincoln and Mercury vehicles equipped with factory-installed air conditioning.

This feature is designed to provide improved engine cooling and air conditioner output at idle speed in high ambient temperature.

This throttle control consists of a vacuum-operated diaphragm connected through an actuating rod to the throttle linkage on the carburetor. Manifold vacuum, which is applied to the diaphragm, is controlled by an electric solenoid.

With the control installed, the engine will idle at approximately 800 r.p.m. whenever the air conditioner is operating and the transmission selector is in neutral.

The engine will return to

normal idle speed when either the transmission selector is moved out of neutral position or the air conditioning system is turned off.

Fig. 8 shows the air conditioning system wiring diagram of a 1955 Mercury equipped with fast idle.

Fig. 9 shows the air conditioning system wiring diagram of a 1955 Lincoln equipped with fast idle control and automatic starter. Latter device permits the car to be started merely by shifting transmission lever to neutral.

Fig. 10 shows wiring of 1955 Lincoln with fast idle but without automatic starter.

SERVICE HINTS

Evacuating System

Use of a vacuum pump for evacuating Lincoln and Mercury air conditioning systems is recommended by the factory. Vacuum pump is connected to the gauge manifold in the usual manner.

As previously mentioned, discharge and suction service

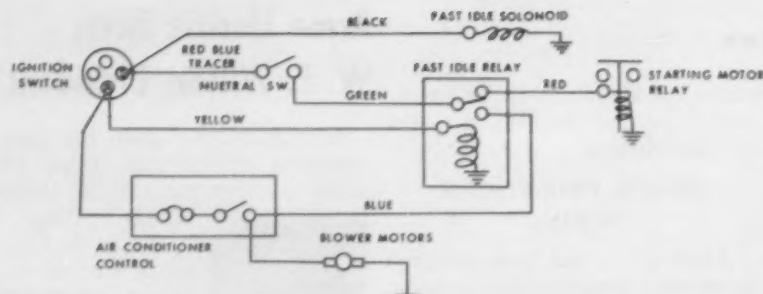


FIG. 8—Fast idle control introduced in mid-1955 Mercury production employs this wiring.

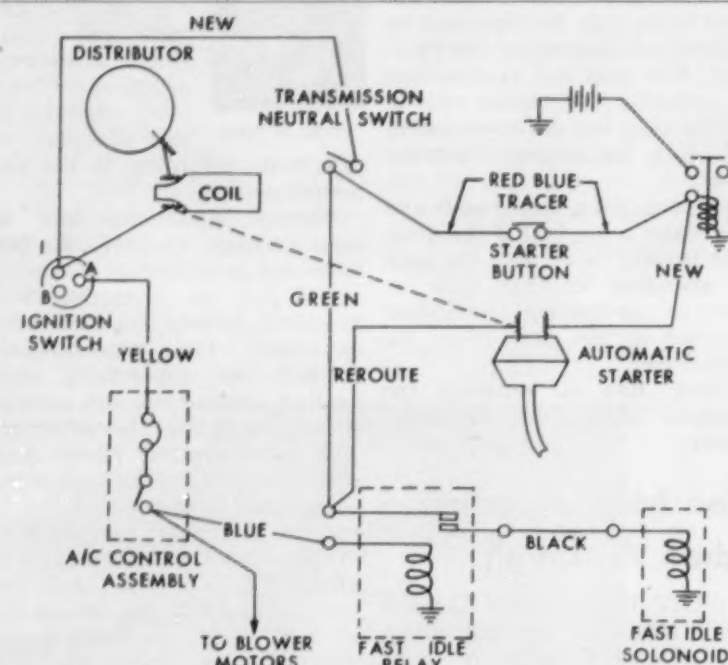


FIG. 9—Fast idle control added in mid-1955 Lincoln production uses this wiring on cars equipped with automatic starter.

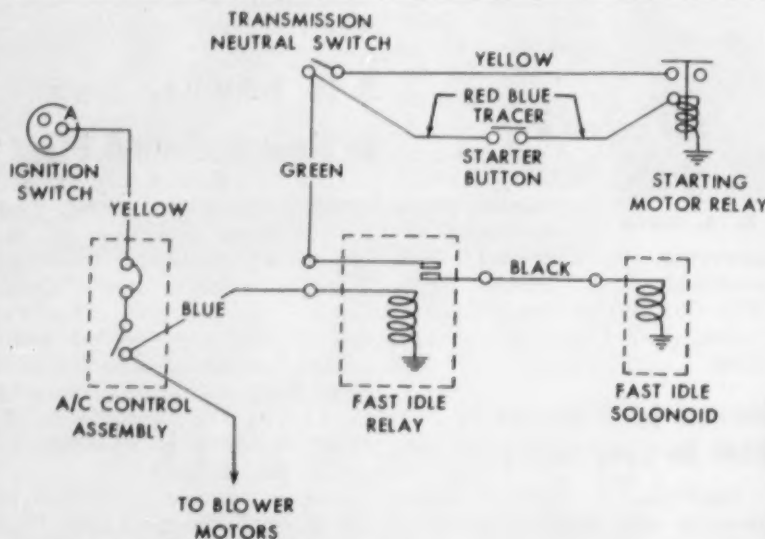


FIG. 10—Fast idle control on 1955 Lincolns without automatic starter is wired as shown.

valves are not mounted on the compressor. Discharge service valve is at the condenser, suction service valve on right fender well.

For evacuating, the vacuum pump should pull the system down to at least 24 in. of vacuum in 20 minutes.

Charging System

Lincoln and Mercury air conditioning systems are charged

ASPIR-JET SPRAY NOZZLES RAISE TOWER EFFICIENCY

The swirling, atomizing action of the water as it goes through the Aspir-Jet means more effective heat transfer and higher efficiency from any spray-filled cooling tower. Pressure as low as 1/2 pound gives effective water break-up and distribution. Formed of butyrate plastic, Aspir-Jets will not corrode.

Available through Refrigeration and Air Conditioning Wholesalers.

Manufacturers & Refrigeration Wholesalers: if you are not now using or stocking this outstanding new product, wire or write

THERMAL AGENCY

National Sales Agents
1815 DALLAS • HOUSTON, TEXAS

through the low side in the conventional manner.

Full charge is 6 1/2 lbs. of "Freon-12."

When charging, the car engine should operate at fast idle speed, the temperature control lever should be in full cold position, and both blower control knobs pulled out for high speed blower operation.

When the system is fully charged, there should be no bubbles visible in the sight glass (in evaporator housing), the suction pressure should be between 20 and 30 p.s.i.g., and the discharge pressure between 135 and 160 p.s.i.g.

(To Be Continued)



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GYP-SOL**

[FOR THE REMOVAL OF
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**WC-210
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[FOR THE REMOVAL
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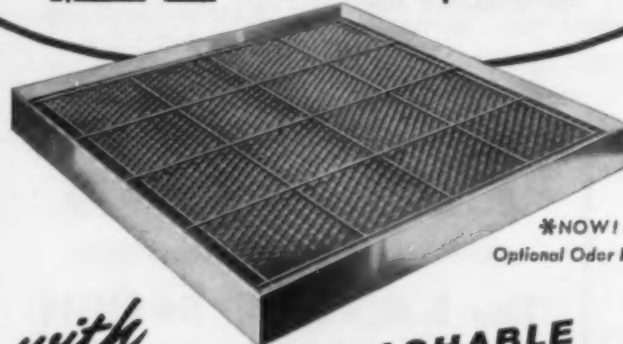
For further information, contact your local wholesale air conditioning and refrigeration supply house or . . .

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"Our 10th Year"

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special size AIR FILTER problems!



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Optional Odor Removal

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E Z KLEEN WASHABLE
ALUMINUM
Air Filters

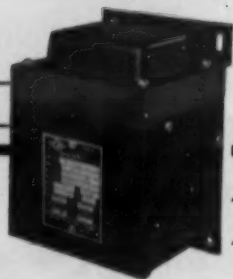
For filter sales or filter service, E Z Kleen aluminum washable air filters for air conditioners fit your profit picture perfectly. They permit a reduced inventory...result in fewer call-backs...require less storage space. With home service by customers, you profit from sale of R P Handi-Koter adhesive or R P Super Handi-Koter, fast-selling, replacement items. Or...you can establish a profitable service business. Whatever your type operation, E Z Kleens are the answer! In 1/4", 1", or 2" thicknesses.

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HOW TO GET 230 Volts FROM A 208 Volt CIRCUIT

208 VOLTS
GOES IN HERE



228.8 VOLTS
COMES OUT HERE

As a quick and economical method of supplying normal voltage (220, 230 or 240 volts) single phase from available under voltage circuits (197, 208, or 214 volts) this series of transformers will solve many application problems. For example, the installation of air conditioning equipment in an office or commercial building, where only lighting circuit voltage is available may require the installation of a separate circuit connected from two legs of a power line; such connection providing 208 volts single phase. This 208 voltage, not being sufficient to develop full starting torque of the 230 volt single phase motor, may cause the motor to operate constantly on starting windings and this would result in overheating and possible burn-out.

The Boost and Buck series of transformers are essentially 4 winding insulated transformers in which the separate windings are interconnected so as to provide essentially the same voltage tapping characteristics as an auto transformer. In effect the secondary winding voltage is added to the input voltage thus boosting the output voltage 5% or 10% as desired.

Acme Electric Boost & Buck transformers are available in capacities to meet the needs of any installation from 1/4 ton units to commercial types requiring up to 105 KVA electrical capacity. Write for Catalog BB-199.

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924 WATER STREET • CUBA, NEW YORK

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LA CROSSE KUBE KING Automatic ICE MACHINE

Kube King, the leader in practical design, economical operation produces approx. 2,000 kubes every 24 hours... storage bin holds about 75 lbs. ... uses only 5 qts. of water per freezing cycle.

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Export Office: 80 Broad St., New York City. Cable: Eximport



NEW compact Frigidaire self-contained air conditioner can be installed in conjunction with almost any forced air heating system. Short ductwork to the present duct line, plus plumbing, electrical, and drain connections are all that are necessary, Frigidaire says. It is offered in 2, 3, and 5-ton capacity sizes and suitable for household or commercial installation.



YEAR-ROUND air conditioner offered in 2 and 3-ton cooling capacity sizes is a part of the line of Frigidaire air conditioning units for homes. It has complete cooling and heating systems combined into one package. It is designed to provide weather control for new or existing 4 to 6-room homes. The furnace is offered for use with oil or gas as fuel.



1956 line of Frigidaire room air conditioners is offered in two series, the Deluxe and the Super. The Deluxe series consists of six models of 1/4-hp., 1-hp., and 1 1/2-hp. capacities. A 1-hp. reverse cycle model that heats as well as cools is also available. Automatic thermostats are built in. The Super series has eight models of 1/4-hp., 3/4-hp., and 1-hp. capacities. The 1/2-hp. models are designed specifically for casement window installation.

window installation, is equipped with a sealed rotary compressor.

Suggested list prices follow:

SUPER MODELS		
Model No.	Hp.	Price
A50-56	1/4	\$259.95
AG50-56*	1/4	259.95
A75-5611	1	299.95
A75-5621	1	299.95
A75-5681	1	299.95
AG75-5611*	1	299.95
A100-5621	1 1/2	319.95
A100-5681	1 1/2	319.95
DELUXE MODELS		
Model No.	Hp.	Price
AT75-5611	1/4	\$334.95
AT75-5621	1/4	334.95
AT100-5621	1	354.95
AT100-5621†	1	399.95
AT150-5621	1 1/2	429.95
AT150-5681	1 1/2	429.95

*Ground on 115-volt models.

†Reverse cycle operation.

Frigidaire Line--

(Concluded from Page 1, Col. 2)

of six models: two 1/4 hp., two 1 hp. (one of these has reverse cycle operation), and two 1 1/2 hp.

All Deluxe models have automatic thermostat temperature control and exhaust systems. Super series units can be equipped with thermostats at slight extra cost.

The 1/4, 1, and 1 1/2-hp. models of both series contain new single reciprocating type refrigeration compressor. The 1/2-hp. unit, designed specifically for casement

The new line of furnaces are available in low-boy, high-boy, counter-flow, and horizontal designs.

The gas-fired models will range in capacity from 70,000 B.t.u./hr. to 190,000 B.t.u./hr. input using natural, artificial, or liquid petroleum fuels. The oil-fired models have capacities ranging from 84,000 B.t.u./hr. to 128,800 B.t.u./hr. bonnet output.

The Multi-matic cooling units are also designed to be installed in sections. For instance, the coil and fan section can be lifted from the top of the compressor section and installed separately.

The year-round unit combines both cooling and heating in one single cabinet. The heating section contains non-clogging burners. Heating capacity with oil is 84,000 B.t.u./hr. output and with gas, 108,000 B.t.u./hr. input. Each model has been designed to operate in small closet-type enclosures, or basements.

A complete line of packaged Master-matic air conditioners for commercial application are also offered in capacities ranging from three to 15 tons.

Frozen Food Center Management Institute Planned for June 3-7

ALLERTON PARK, Ill. — A Management Institute planned for locker plant, frozen food center, and freezer food supplier operators will be held here June 3-7, it was reported recently.

Dealing with basic management problems, the program will be open to operators from all over the nation, it was said. It will be conducted by the Bureau of Business Management, University of Illinois, and will be co-sponsored by affiliated Illinois association and the National Frozen Food Locker Institute.

Tuition and registration fee will be \$50 for the entire session, according to the report, and that cost includes several meal functions on the program.

Are you in the dark about VALVES?



Now off the press—NEW Primore Refrigeration Valve Catalog

Here's a book that enlightens you on many of your valve problems. This comprehensive catalog gives complete details, application data and other pertinent information on the many types of valves now used on Household and Commercial Refrigeration Units, Residential and Automotive Air Conditioning, as well as Compressors, Receivers, Condensers and Evaporators. Primore Valves are hydrogen brazed steel constructed, thereby resulting in considerable savings to the user. A section of this catalog also covers Special Valves, Parts and Fittings.

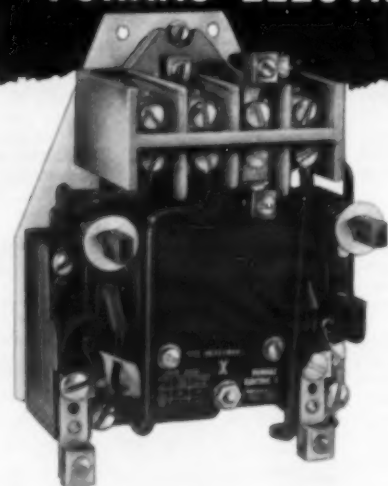


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FURNAS ELECTRIC CONTROLS do the best job for AIR CONDITIONING and REFRIGERATION



MAGNETIC CONTROLS FOR HERMETIC UNITS

As original and replacement controls for air conditioning and refrigeration units, these compact magnetic controls are available in ratings of 20, 30, 35 and 50 amperes sizes and are listed as standard by Underwriters' Laboratories. Also available is a complete line of magnetic control for open type compressor units for applications through 200 hp.

Write today for Air Conditioning Bulletin 5410,
1111 McKee Street, Batavia, Illinois.



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Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

SMALL FIRMS

Headquarters, Oklahoma City Air Materiel Area, Tinker Air Force Base, Oklahoma City, Okla. Attn.: Procurement Division OCPFB. Furnish all labor and materials for OVERHAUL OF 4 YORK 1075 TON TYPE 2KAC REFRIGERATOR COMPRESSORS AND 4 WESTINGHOUSE 1070 HP. TYPE C225 STEAM TURBINES. Work to be performed at Tinker AFB, Okla.—Job—IFB 34-601-56-420 B (LP)—Bid Opening 16 April 56.

ARMY

Huntington District, Corps of Engineers, U. S. Army, 237 Fourth Ave., Huntington, W. Va. AIR CONDITIONING PORTIONS of Steiner Building, 237 Fourth Avenue, Huntington, W. Va.—Job—IFB CIVENG-46-022-56-50B—Bid Opening 13 April 56.

Purchasing and Contracting Division, Fort Lee, Va. INSTALLATION OF MECHANICAL VENTILATING SYSTEMS in eight buildings—Job—IFB 44-056-56-90—Bid Opening 18 April 56.

NAVY

District Public Works Office, First Naval District, 495 Summer St., Boston, Mass. INSTALLATION OF HEATING SYSTEM Building 50 at Hingham, Mass.—IFB 48558B—Bid Opening 18 April 56. Bidding Data furnished upon receipt of check for \$10 payable to Treas. of U. S.

AIR FORCE

Warner Robins Air Materiel Area, Robins Air Force Base, Ga. Attn.: Director of Procurement and Production. AIR CONDITIONING FAMILY QUARTERS (Furnishing and installing self-contained, year-round air conditioning units, including oil fired interchanger, oil burner, fan and motor, air cooled condenser, cooling tower, and controls)—10 bldgs.—IFB 137 B, Local Purchase—Bid Opening 16 April 56.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 2, Business Service Center, 250 Hudson St., New York 13, N. Y. VENTILATING FANS, etc., for Veterans Administration Bldg., 5000 Wissahickon Ave., Philadelphia, Pa.—Lot—IFB-2PC-6-1364(ADVT)—Bid Opening 4-9-56.

U. S. ATOMIC ENERGY COMMISSION

U. S. Atomic Energy Commission, Procurement and Traffic, New York Operations Office, 70 Columbus Ave., New York 23, N. Y. ELECTROSTATIC PRECIPITATOR, air handling capacity 600 CFM with accessories, and extra collector coil for Electrostatic Precipitator—1 ea.—IFB NY 25-56-1040—Bid Opening 4-13-56.

CONTRACTS AWARDED THROUGH APRIL 2, 1956

General Services Administration, Region 7, Business Service Center, Dallas, Texas. Air Conditioning Court Room and Judges Chambers, Post Office and Court House, Texarkana, Arkansas (IFB CR7563-238)—Job—\$15,267—General Heating & Air Conditioning Co., 9001 San Benito Way, Dallas, Texas.

Officer in Charge of Construction, 14th Naval District, Navy 128, P. O. Box 94, P. O. San Francisco, Calif. Reinsulate Freeze Rooms, Bldg. No. 135, U. S. Marine Corps Sta., Kaneohe Bay, Oahu, T. H. (IFB NOV-90207)—Job—\$37,000—Associated Masons Ltd., 666 Ala Moana, Honolulu 13, Hawaii.

Headquarters, Mobile Air Materiel Area, Brookley Air Force Base, Ala. Install Air Conditioning System, Bldg. 11, Brookley Air Force Base, Ala. (Contract AF 61-601-19701)—Job—\$43,081—Air Conditioning Engineers, Inc., 2715 Dauphin St., Mobile, Ala.

General Services Administration, Region 3, Business Service Center, 7th & D Sts., S. W., Washington 25, D. C. Air Conditioning Units, (IFB R2D-69051-R)—100 ea.—\$14,760—McGraw Electric Co., Longman Mfg. Div., 704 N. Clark St., Albion, Mich.

District Public Works Office, Potomac River Naval Command, U. S. Naval Gun Factory, Washington, D. C. Air Conditioning and Electrical Improvements at Marine Corps Schools, Quantico, Va. (IFB NOV-91965)—Job—\$89,400—Anderson & Estabrook, Inc., 1021 N. Fillmore St., Arlington 1, Va.

OIC of Construction, Bureau of Yards and Docks, 4th Naval District, U. S. Naval Base, Philadelphia 12, Pa. Consolidation, Enlargement and Conversion of Heating Plant, Naval Air Station, Columbus, Ohio (IFB NOV-92750)—Job—\$278,125—Lieb-Jackson, Inc., 337 S. High St., Columbus 15, Ohio.

Chicago QM Purchasing Center, U. S. Army, 1819 West Pershing Road, Chicago 9, Ill.

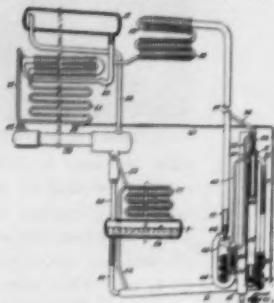
Frozen Food Cabinet (upright freezer), reach-in type, 18 to 22 cu. ft. capacity—IFB 56-252(B)—353 ea.—\$85,255—Norge Sales Corp., Div. of Borg-Warner Corp., Merchandise Mart Plaza, Chicago 54, Ill. Range, Electric, Domestic, Table Top (with broiler) 4 hot plates (surface heating units)—IFB 56-242(B)—2,101 each—domestic pack—2,224 each export pack—\$333,839—Weibull Corp., 57-18 Flushing Ave., Maspeth 78, Long Island, N. Y.

Corps of Engineers, U. S. Army, Office of the District Engineer, Mobile District, 2301 Grant St., Mobile, Ala. Air Conditioning Research and Development Engineering Building at Redstone Arsenal, Huntsville, Ala.—(IFB ENG-01-076-56-62)—Job—\$207,495—Brown Plumbing & Heating Co., Birmingham, Ala.—Contract DA-01-076-ENG-3283.

PATENTS

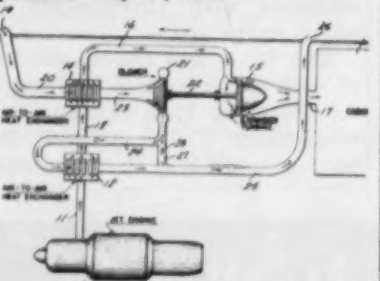
Week of October 25
(Continued)

2,721,455. ABSORPTION REFRIGERATION. Axel Gosta Hellstrom, Enskede, Sweden, assignor to Aktiebolaget Elektrolux, Stockholm, Sweden, a corporation of Sweden. Application Aug. 19, 1950, Serial No. 180,476. Claims priority, application Sweden Aug. 25, 1949.



1. The method of circulating absorption solution through and between a place of heating and a place of absorption which comprises flowing absorption solution enriched in refrigerant from said place of absorption by gravity to a place at one level, expelling vapor from solution at said place of heating, flowing such expelled vapor to said place at one level for repeatedly segregating solution therein to form plugs of liquid which are raised by vapor-lift action with said expelled vapor in a path of flow extending upwardly from said one level to a higher level, conducting raised solution to said place of heating, flowing absorption solution weak in refrigerant from said place of heating to said place of absorption, flowing the absorption solution by gravity from said place of absorption only to said place at one level and maintaining a liquid surface in the latter in sufficiently high to flow therefrom by gravity to said place of heating when expulsion of vapor from solution at said place of heating is substantially terminated, heating a region of said path of flow through which solution is raised by vapor-lift action from said one level to said higher level, such region normally containing solution from said place of absorption when expulsion of vapor at said place of heating is substantially terminated, and, when the flow of expelled vapor from said place of heating to said place at one level becomes reduced, expelling vapor from said solution in said region by heating effected at such region to raise solution by vapor lift action from said one level to said higher level, especially when said place of heating is depleted of absorption solution and ineffective to supply vapor to said place at one level when heating is effected at said place of heating following a shut-down period.

2,721,456. AIRCRAFT AIR CONDITIONING SYSTEM. Vernon L. Whitney, Jr., Hicksville, and John L. Weiler, Freeport, N. Y., assignors to Fairchild Engine and Airplane Corp., Bay Shore, N. Y., a corporation of Maryland. Application July 14, 1953.



1. In an air conditioning system for aircraft and the like having at least one compartment to be cooled, the combination of a source of cabin supply air under pressure, a source of cooling air, an expansion turbine driven by the cabin air from said first-named source and discharging the expanded air to said compartment for cooling the same, a blower driven by said turbine and having an inlet connected to said second-named source and outlet, a spent cooling air discharge connected to said blower outlet, a heat exchanger interposed between said first-named source and the inlet to said blower and supplied with cooling air from said second-named source for precooling the cabin air prior to admission thereof to said turbine, and a second heat exchanger interposed between said spent cooling air discharge and outlet from said blower for precooling said cabin air prior to admission to said first heat exchanger.

(To Be Continued)

Charter Clarksdale Firm

CLARKSDALE, Miss.—Charter of incorporation has been granted Delta Air Conditioning and Heating Co., listing capital stock of \$25,000.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications \$10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

REFRIGERATION ENGINEER with 13 years' experience in design and testing of refrigeration systems, specializing in window-type and residential air conditioners desires position in a warmer climate. Capable and experienced in the management of design and testing. Acquainted with the latest manufacturing methods. Location desired—Florida or Southwest. BOX A5509, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

OPPORTUNITY FOR manufacturers' representative: To increase your earnings, sell a full line of freezers, beverage coolers, display cases, dual temperature reach-ins and walk-ins. We manufacture a quality line to meet competition. Territories now available, write HOWARD REFRIGERATOR CO., INC., 4745 Worth Street, Philadelphia 24, Pa.

MANUFACTURERS' REPRESENTATIVE with commercial refrigeration experience, now covering Michigan, Indiana, Midwestern or Southwestern states, to sell fast-growing line of commercial equipment. Write PAUL R. STEWART, 1712 John Street, Cincinnati 14, Ohio.

REFRIGERATION ENGINEERS and technicians for established firm manufacturing refrigerated bottle vending machines now entering the central refrigerated air conditioning industry. Engineering degree not essential but considerable experience in the design and development of refrigerated sheet metal products important. Permanent positions in fine California city with an expanding company with a multimillion dollar annual sales volume. VENDORLATOR MANUFACTURING COMPANY, 2550 So. Railroad Avenue, Fresno, California. Phone 6-9401.

REPRESENTATION WANTED—There are a few territories available for factory representation with a reputable manufacturer of complete residential air conditioning. If interested, write, giving name, education and summary of experience. P. O. BOX 1300, Laurel, Miss.

MANUFACTURER'S REPRESENTATIVES with commercial refrigeration experience wanted. We have several desirable territories open. Complete line refrigerated display and storage fixtures, including latest design self-service models for supermarkets; also bakery refrigerators and complete line institutional and restaurant refrigerators. Contact dealers, distributors and food chains. Give complete details as to experience and industry references in first letter. Replies held in confidence. BOX A5500, Air Conditioning & Refrigeration News.

HEAT PUMP service engineer to be located at headquarters of leading manufacturer of air conditioning and heat pump equipment, to assist field organization in service training program. Familiarity and experience with heat pump essential. Travel required. Salary and expenses. Send experience resume to BOX A5505, Air Conditioning & Refrigeration News.

AIR CONDITIONING & refrigeration sales supervisor: AAA-1 National manufacturer has opportunity for experienced sales engineer to contact franchised distributors and dealers in Michigan and Upper Indiana. Must have field sales experience, engineering background desirable. Good compensation, car furnished, other benefits as vacation, pension and health programs available for right man. BOX A5506, Air Conditioning & Refrigeration News.

SALES SUPERVISOR for Western Michigan distributor of leading and nationally advertised manufacturer of commercial and residential air conditioning equipment to appoint dealers and work with their sales organizations. Experience in this business pre-

ferred but consideration will be given to others with proven sales record. Age 28 to 35 years. Salary and commission commensurate with ability. Group insurance and other social benefits. Must live at Grand Rapids. Our organization knows of this advertisement. Write full details of your experience to BOX A5510, Air Conditioning & Refrigeration News.

ARE YOU a dissatisfied District Sales Manager handling commercial refrigerators or allied products? Or do you feel you have the potential to increase your earnings through your ability to supervise a number of established dealers and to select new ones? If so, you probably will want to check on this opening in the Central Atlantic States area which offers higher than average compensation. Our sales have increased yearly for the last five or more years. We have supermarket refrigerators as well as a good line for smaller food markets plus taverns, etc. We are definitely on the move upward and if you would like to associate with us, write BOX A5511, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

FOR SALE—30 hp. Ammonia refrigeration unit like new—complete with two unit blowers. Sacrifice for quick sale. Make offer. BAKER'S, Malone, New York.

FLAKE ICE machine—Model KF-25-412—manufactured by Belt Ice Machine Co.—rated at 2½ tons, 55° water—New in original crate—cost \$2,835.00—dealer going out of business, any reasonable offer accepted. Write to L. P. Gignac, c/o DOMESTIC REFRIGERATION CO., INC., 134 NW 3rd Avenue, Miami, Florida.

AUTOMATIC CONDENSATE pumps \$29.95 up at your local wholesaler. Available in 110 or 220 volts 10 or 20 foot heads. Totally enclosed or hot dipped galvanized tanks with 2 gallon reservoir.

NEW YORK, Abco Refrigeration, 1615 Second Ave.

BRONX, Garson Plumbing, 2987 Webster Ave.

MT. VERNON, Eastern Supply, 521 East Third Street.

WHITE PLAINS, County Seat, 111 Central Ave.

NEWARK, N. J., Tesco Distributors, 78 Boston Street.

DAYTON, OHIO, W. H. Kieffer Co., Refrigeration Dept.

SACRAMENTO, CALIF., Associated Refrigeration, 1717 Eye Street.

Distributors write to KESCO PRODUCTS CORP., Springfield Gardens 13, N. Y. for sample pump and literature.

NATIONALLY-FAMOUS HERMETIC units at fabulous discounts! ¼ h.p. to ½ h.p. domes from \$29.50. Hermetic units with air-cooled finned condenser attached, ¼ and ½ h.p., from \$34.50. Complete unit assembly with fan-cooled condenser (less dome) for use with ¼, ½ or ¾ h.p. dome, only \$9.00. ¼ h.p. static condensers—\$5¢ each. Many other parts at equal savings. All equipment brand new, ready for immediate shipment. Write or phone for descriptive literature. MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, N. Y.

AIR CONDITIONING value: 2 h.p. hermetic compressor F-12 230V, 1/phase HD200, 2 h.p. air cond. evaporator 23½" L x 16" H x 3½" W, 2 h.p. air cond. condenser 24" L x 24" H x 4½" W. Also included 2 ton F-12 T. X. Valve & dual pressure safety cutout switch. Complete matched component kit as described \$179.50. Freight prepaid anywhere in the continental U. S. A. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

BUSINESS OPPORTUNITIES

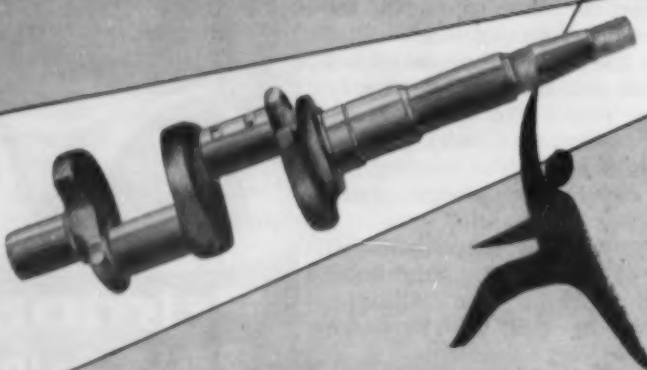
FOR SALE—Established commercial refrigeration and air conditioning sales and service. Fast growing community 16 miles from Los Angeles, Calif. Very low inventory—New 20' x 60' building may be leased. BOX A5502, Air Conditioning & Refrigeration News.

SALES PROMOTION wanted by industrial manufacturer. A hard hitting sales organization to promote and sell patented product to the refrigeration trade. Now selling for over \$500.00 thru trade magazine advertising only. Must be capable and financially sound to handle on an exclusive national basis. BOX A5507, Air Conditioning & Refrigeration News.

SHAFTS by MODERN

Shafts by Modern now power compressors for the leading lines of commercial refrigeration and air conditioning units. For precision SHAFTS, in quantity, consult us. Send blueprints for quotation.

SINCE 1924...



Modern Machine Works, Inc.

Pioneers in Shaft Manufacture

5354 S. KIRKWOOD AVENUE CUDAHY, WISCONSIN

York-Shipley --

(Concluded from Page 1)

cooling capacity with low heating capacity, while other areas need high heating capacity with low cooling capacity.

"Our engineers have been concentrating on smaller-size heating units, and their developments have been worked into the complete year-round air conditioner. This unit is designed for operation in either a basement installation or in a utility room or closet."

Another feature of the new Shipley Homeaire unit is that it is available with a pre-charged refrigerant line, which can be easily connected to both the condensing unit and evaporator without the use of special tools.

In all models, the change from heating to cooling is made simply by turning a tight-sealing changeover vane at the front of the unit. Burner operation during the cooling cycle is prevented by an automatic pressure safety switch that cuts the burner out.

With oil-fired burners, the heating capacities are 75,000, 100,000 and 125,000 B.t.u.h. The 75,000 B.t.u.h. furnace may be combined with either a 1½-hp. or a 2-hp. compressor. With furnaces of 100,000 or 125,000 B.t.u.h., either a 2-hp. or a 3-hp. compressor may be specified.

The three gas-fired burners have heating capacities of 85,000, 114,000, and 141,000 B.t.u.h. The smaller furnace may be used with either a 1½-hp. or 2-hp. compressor; with the two larger models either a 2-hp. or a 3-hp. compressor may be utilized.

Largest size of the compact heating-cooling package requires 29 by 44¾ in. floor space, stands 53¼ in. high. The taupe-and-white cabinet houses a burner of the high pressure atomizer type, motor-driven blower, evaporator coil, refrigerant feed . . . everything but the condensing unit. The cooling coil is in the air stream.

Shipley special spring-loaded connectors (patent pending) enable quick connection of the refrigerant lines and assure a fully sealed system.

All condensing units of this new line use the air-cooled principle. The condensing unit is installed outdoors or in a garage or carport. Units for remote installation have rust-proofed casing designed with peaked top to prevent the retention of water.

Housing Project Getting Weathertron Heat Pumps

BALDWIN, Mo. — The first all-electric year-round air conditioned housing project in the St. Louis area is currently under construction here.

Called the Parkchester Development, the tract will contain 185 homes, each equipped with a "Weathertron" heat pump. The homes, of frame construction, will sell for \$19,500 with all appliances.

They will be of split-level design, containing four separate levels. St. Louis County Construction Co. is the builder.

Maplewood Sheet Metal Co., a dealer of Henry Weis, Jr., St. Louis, sold and will install the Weathertron units. Outdoor air will be obtained through a window well.



"Homeaire" year-round air conditioner, with oil or gas heat, as installed in basement. Shipley air-cooled condensing unit is installed outdoors.

Airtemp Names Detroit Builder Specialist

DAYTON — Anthony C. Spanke has been named builder specialist — Detroit area — for Airtemp Div., Chrysler Corp., F. J. Laughna, director of regional operations, announced recently.

Spanke was formerly eastern Michigan sales representative for Peterson Window Corp., Detroit. Earlier he was associated with Silex Co. as Michigan and northern Ohio district sales manager.

In his new assignment he will work with Detroit-area builders in promoting Airtemp air conditioning equipment.

"A CASE OF COOL JUDGMENT"



**FLO-COLD
DRINKMASTER**

**STAINLESS STEEL
CUBER — COOLER.**

SOLD THRU DEALERS ONLY

WRITE

**United Refrigerator Engrs.
MENOMINEE, MICH.**

AVAILABLE IN SIZES 4 to 10 FT.

JOBBER SALESMAN

We are expanding our sales program covering a greatly enlarged line of products to be introduced shortly. We require a salesman with the following qualifications to call upon jobbers:

Intimate acquaintance with Midwest jobbers.

Must thoroughly know refrigeration.

Age 30 to 35.

Successful past sales record.

The right man can secure an unusually good position with a bright future.

Write Lyman B. Betz, Betz Division, Bohn Aluminum & Brass Corporation, Hammond, Indiana.

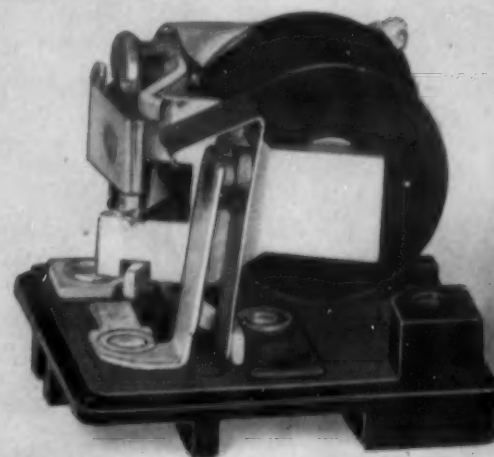
GENERAL ELECTRIC NEWS

featuring G-E appliance controls for refrigeration systems

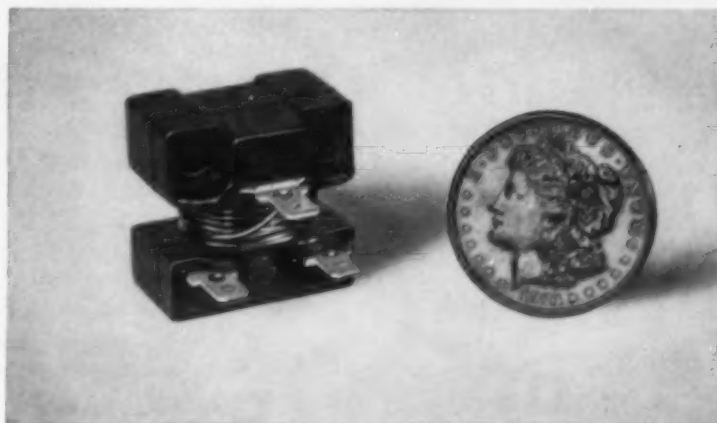
General Electric Starting Relay Eliminates Voltage Adjustments

General Electric's Type ARR-3 relay, pictured at the right, is a sturdy, inexpensive snap action device that's used most commonly in the starting of single-phased hermetically sealed refrigerator compressor motors. The dependable G-E relay is factory-adjusted to pick up at a predetermined voltage according to each customer's specific application. Additional features include corrosion-resistant parts, two spare terminals and the attractive molded cover which provides maximum protection against moisture and dust.

FOR FURTHER INFORMATION on this economical standard size G-E starting relay, contact your nearest Apparatus Sales Office, or write for GEC-1246, Section 740-86, General Electric Company, Schenectady 5, N. Y.



NEW Silver-dollar-sized Relay Gives One Million Starts



General Electric's new small-sized starting relay is designed for more than 1,000,000 operations. Designated Type ARR-2, the new G-E relay gives you high horsepower and current rating ranges (at 115 volts will make and break 15 amperes) and it can be installed from any direction, eliminating the need for any special mounting brackets. The new relay is particularly applicable where adverse atmospheric conditions exist or where you want remote control. Contact your nearest G-E Apparatus Sales Office for further free detailed information.

GENERAL  ELECTRIC

For more information about products advertised on this page use Information Center, page 36.

Govt. Cooling--

(Concluded from Page 1, Col. 3)

considered a function of the GSA. However, five judges who make up the air conditioning committee of the Judicial Conference of the United States told Congress that the GSA is opposed to this kind of "piece-meal" air conditioning.

According to Judge John T. Parker of the Fourth Circuit, the GSA's position is that "they want to air condition the whole business, and they think nobody ought to be air conditioned unless everybody is."

Pointing out that the agency refused to request any additional money in its own budget for further court air conditioning on a room-by-room basis, Judge Parker stated:

"They said they were in favor of basic air conditioning, and they did not want to do the sort of temporary air conditioning that was being done now."

\$600,000,000 SEEN AS TOTAL COST

"But let me say this. To do the work they envision will cost \$600,000,000 and will take a long time. What we are proposing is that you give us less than 2% interest on that amount, \$1,500,000, and we can take care of the worst places in the country and do it satisfactorily."

"We do not think the efficiency of the United States courts should have to wait on the GSA's basic air conditioning," Judge Parker added.

Circuit Judge E. P. Tuttle of Atlanta told the committee:

"I was in Fort Worth for two weeks in November. It was 87° ... and none of the court rooms where the district judges then were holding court were air conditioned, and the same condition was true in Dallas."

NEWSPAPER SEES DELAY

Reporting on the controversy, the *Dallas Morning News* said the disagreement may hold up the air conditioning of Federal court rooms and offices in 17 Texas cities.

Both Dallas and Fort Worth offices for court personnel are on the list of Texas projects to be air conditioned if the judiciary's request for \$1,500,000 is approved, the paper said, adding: "Dallas may get in anyway, since the GSA has proposed to air condition the whole building."

Other Texas projects said to be on the air conditioning agenda of the administrative offices of U. S. courts are:

Office quarters for circuit court personnel at Sherman, Beaumont, Texarkana, and Jefferson; court room and all court space at Lubbock; quarters of circuit court personnel at Houston, Corpus Christi, Brownsville, Austin, San Antonio, and Laredo; court room and all court quarters at Galveston and Victoria; court room and quarters of circuit court personnel at El Paso; and two court rooms and all court quarters in Waco.

Grand Jury Asks Cooling

CHARLESTON, S. C.—The Charleston County Grand Jury, in its first presentment of 1956, recommended air conditioning of the record bureau.

Chicago Apartment Bldg. Buckeye RSES Plans To Be Rewired Meeting April 20-22

CHICAGO—A 28-story, 100-unit apartment building, one of the South Side's largest, will soon be equipped for air conditioning, it was reported recently.

A rewiring project is under way to increase the building's electrical capacity to accommodate air conditioners, electric ranges, and clothes dryers.

Cost of the project is estimated at \$250 per apartment. A Commonwealth Edison Co. spokesman said the building's central wiring is being upped to 480 volts. The conversion will enable all occupants of the co-operatively owned apartment house to get 240-volt service in addition to the present 120 volts.

Using existing wiring, capacity is increased by nearby installation of a 480-volt three-phase distribution transformer.

AKRON, Ohio—The Buckeye State Association of the Refrigeration Service Engineers Society will hold its 10th annual convention April 20-22 at the Chesterfield hotel in Cuyahoga Falls, a suburb of Akron.

Scheduled for Friday, April 20, is registration in the morning, a tour of the Lawson Dairy Co. plant in Cuyahoga Falls in the afternoon, and a business meeting and get-together party in the evening. A feature of the party will be the showing of a film, "Of This We Are Proud," through courtesy of Kelvinator Div., American Motors Corp.

Saturday morning, H. C. Burki and W. G. Webster of General Chemicals Div., Allied Chemical & Dye Corp., will discuss "Moisture."

Also speaking at this session

will be T. N. Schierloh, technical service manager, Delco Products Div., General Motors Corp. His topic is "Servicing Air Conditioning and Refrigeration Motors."

James Black, manager of field service, Philco Corp., will start off the afternoon session with a talk on "Changing Motor Compressors in the Field." Then, A. Coumont and H. W. Whitby, Sr., Sprague Products Co., Div. Sprague Electric Co., will discuss capacitors for motor start, motor run, and power factor correction.

Next will be a presentation by Williams & Co. in conjunction with Ansul Chemical Co., with A. G. Darling in charge. Topic is fire safety. A film on the subject will be shown and then an actual fire extinguishing demonstration will be staged in the back parking lot.

Sunday morning, A. Russell of Kelvinator will speak on "Customer Relations."

Tecumseh Names--

(Concluded from Page 1, Col. 3) member of the board of directors. He has been with Tecumseh since April, 1955, as general manager of sales and sales engineering.

Roll is general manager of the new Lauson Engine Div. of Tecumseh. He was formerly executive vice president of the Betz Corp.

Holston To Distribute Carrier In 3 States

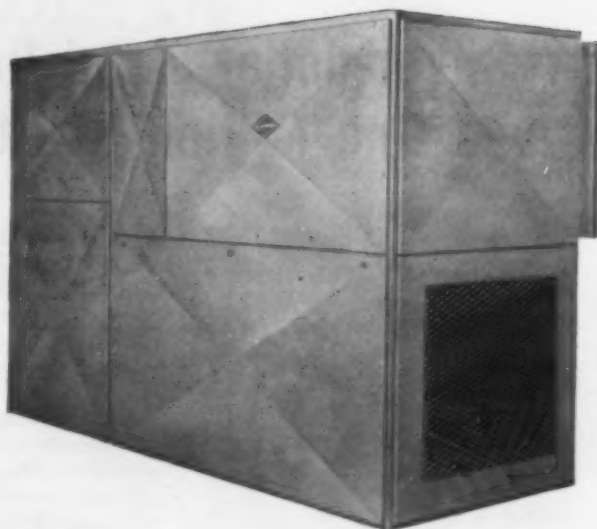
KNOXVILLE, Tenn.—Holston Air Conditioning Corp. here has announced its appointment as distributor of Carrier Corp. equipment in parts of Tennessee, Kentucky, and Virginia.

Robert Ebinger, president of the newly-organized company, said that he and Mr. Winn, owners, have been handling Carrier equipment in this area for many years.

● ● ● One of the nation's largest grocery chains, this Wrigley outlet in Detroit is cooled by the UNARCO AEC.



today's stores need BETTER than adequate AIR CONDITIONING



The purveying of meat, produce and groceries in today's giant supermarkets is big business. Business so important that it's poor judgment not to utilize the best air conditioning equipment available. For air conditioning has a direct effect on the quality of a store's perishables ... on a store's customers ... and on employee morale.

Model AECR shown to the left represents the ultimate in air conditioning equipment. This unit, of single-cabinet construction, functions as a complete air conditioning unit, including heating if desired. It is equipped with built-in, specially designed evaporative condenser for minimum water consumption. (Where water-cooled condenser is desired, specify Model SCR.) A full range of capacities from 7½ through 60 tons makes this the ideal conditioning unit for stores, large offices and industrial installations. For a detailed brochure, write the Heating and Cooling Division, Dept. 100.

UNION ASBESTOS & RUBBER COMPANY

Heating and Cooling Division
332 S. Michigan Ave., Chicago 4, Ill.



For commercial and industrial installations using chilled water systems UNARCO also manufactures large capacity chillers (7½ to 75 h.p.) and air handling units.

DESIGNERS...ENGINEERS...
FABRICATORS OF AIR
CONDITIONING EQUIPMENT

For more information about products advertised on this page use Information Center, page 36.